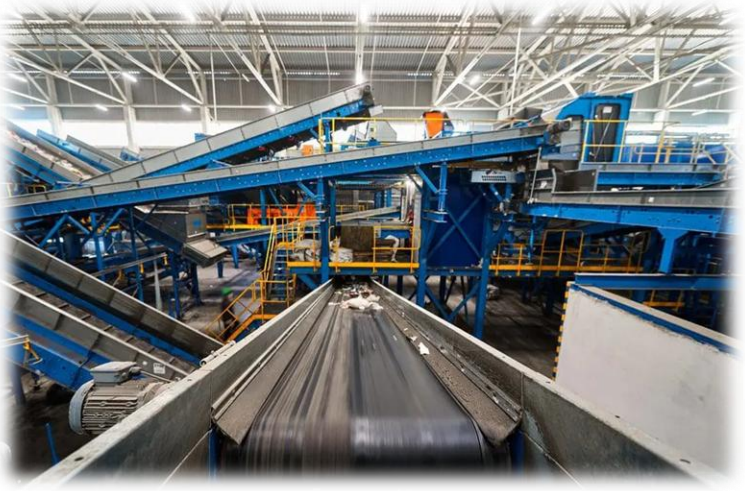
COMPENDIUM OF INDIAN STANDARDS ON CONVEYOR BELTS



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Introduction

Conveyor belt systems are foundational components in modern material handling operations, enabling efficient, continuous movement of goods across short and long distances. These systems have revolutionized industries such as mining, food processing, packaging, manufacturing, and logistics by significantly improving throughput, reducing manual labour and enhancing operational safety.

Conveyor belts come in various forms, each designed to meet specific operational needs based on the nature of materials being handled, environmental conditions, and production flow. Whether it is a flat belt moving cartons in a warehouse, a modular belt in a hygienic food processing unit, or a trough belt transporting bulk minerals, the selection of the right conveyor belt type is essential for optimal system performance.

This compendium provides a categorized overview of the commonly used types of conveyor belts along with corresponding Indian Standards (IS) applicable to each. It serves as a practical reference for industry professionals, engineers, consultants, and manufacturers involved in the design, selection, or maintenance of conveyor systems.

1. **IS 1891 (Part 1): 2021 Textile Conveyor and Elevator Belting – Specification Part 1: General Purpose Belting**

IS 1891 (Part 1): 2021 specifies requirements for general-purpose textile conveyor and elevator belting used in various industries for bulk material handling. Key provisions include definitions of belt types, materials, and construction details such as the number of plies, cover thickness, and textile reinforcement. The standard sets performance criteria for tensile strength, elongation, adhesion between plies, and resistance to abrasion and aging. It outlines test methods for physical and mechanical properties, sampling procedures, and marking requirements. These provisions ensure durable, reliable, and safe belts suitable for standard conveying and elevating applications across diverse industrial environments.

2. **IS 1891 (Part 2): 2025 Rubber Conveyor and Elevator Textile Belting - Specification Part 2: Heat Resistant Belting**

IS 1891 (Part 2): 2025 specifies the requirements for heat-resistant rubber conveyor and elevator textile belting used in high-temperature industrial environments. It classifies belts into grades (HR-T1, HR-T2, HR-T3) based on their heat resistance. The standard covers material specifications, including heat-resistant rubber and strong textile reinforcements, along with construction details like ply number and cover thickness. It defines key performance criteria such as tensile strength, elongation, and adhesion. Heat resistance tests assess the belt's durability after thermal exposure. It also includes provisions for sampling, acceptance, and proper marking, ensuring safety, reliability, and longevity in demanding operating conditions.

3. IS 1891 (Part 3): 1988 Textile Conveyor and Elevator Belting: Part 3 Oil Resistant Belting

IS 1891 (Part 3): 1988 specifies the requirements for oil-resistant textile conveyor and elevator belting used in industries where belts are exposed to oily or greasy materials, such as food processing, fertilizer, and petrochemical sectors. The standard defines suitable rubber compounds that resist oil absorption and degradation. It covers construction details, including textile reinforcements, cover thickness, and adhesion between components. Performance requirements include tensile strength, elongation, and resistance to oil swelling. The standard also outlines sampling, testing methods, and marking provisions to ensure quality and reliability. It helps ensure belt durability and efficiency in oil-prone environments.

4. IS 1891 (Part 4): 2024 Conveyor and Elevator Textile Belting - Specification Part 4: Hygienic Belting

IS 1891 (Part 4): 2024 outlines the specifications for hygienic textile conveyor and elevator belting, intended for applications in food processing, pharmaceuticals, and other hygiene-sensitive industries. Key provisions include the use of non-toxic, food-grade rubber compounds and fabrics that resist microbial growth, contamination, and moisture absorption. The standard specifies smooth, easy-to-clean surfaces, construction details like ply structure and cover thickness, and resistance to oils, fats, and cleaning chemicals. It also defines physical and mechanical requirements such as tensile strength and adhesion. Testing methods, sampling, and clear marking requirements are included to ensure safety, hygiene, and regulatory compliance in clean environments.

5. **IS 1891 (Part 5): 1993 Textile Conveyor and Elevator Belting: Part 5 Fire Resistant Belting for Surface Application**

IS 1891 (Part 5): 1993 specifies the requirements for fire-resistant textile conveyor and elevator belting used in surface applications where fire hazards exist, such as thermal power plants, coal handling, and other industrial setups. Key provisions include the use of fire-retardant rubber compounds and durable textile reinforcements. It outlines construction details like ply number and cover thickness. The standard defines performance requirements such as flame resistance, anti-static properties, tensile strength, and adhesion. It also specifies test methods for fire resistance, sampling procedures, and marking requirements. These provisions ensure enhanced safety, reliability, and durability in fire-prone industrial environments.

6. **IS 3181: 1992 Fire Resistant Conveyor Belting for Underground Mines**

IS 3181:1992 specifies the requirements for fire-resistant conveyor belting used in underground mines, where safety from fire and toxic fumes is critical. Key provisions include the use of specially formulated fire-retardant rubber compounds and strong textile reinforcements. The standard outlines construction features, such as number of plies and cover thickness, to ensure durability. It defines performance requirements like flame resistance, low smoke emission, anti-static properties, and mechanical strength. Detailed test methods assess fire resistance and physical properties. Provisions for sampling, inspection, and marking are also included to ensure compliance. The standard ensures enhanced safety and reliability in underground mining operations.

7. **IS 13775 (Part 1): 2024 Conveyor Belting – Solid Woven Cotton Synthetic Impregnated and Unimpregnated – Specification: Part 1 Aeroslide Belting for Air Gravity Conveyor**

IS 13775 (Part 1): 2024 specifies requirements for aeroslide belting used in air gravity conveyors, commonly employed for transporting powdered or granular materials like cement, alumina, and fly ash. The belting is made of solid woven cotton or synthetic fabric, either impregnated or unimpregnated, ensuring air permeability, mechanical strength, and durability. Key provisions include fabric construction, permeability range, thickness, dimensional stability, and resistance to wear and environmental factors. The standard also outlines testing methods,

sampling procedures, and marking requirements. These provisions ensure consistent airflow, smooth material movement, and long service life in pneumatic conveying systems operating under gravity.

8. **IS 15143 : 2002 Conveyor Belting of Elastomeric and Steel Cord Construction for Underground Mines and Hazardous Applications**

IS 15143:2002 specifies the requirements for conveyor belting made of elastomeric materials with steel cord reinforcement, used in underground mines and hazardous environments. Key provisions include the use of flame-retardant, anti-static elastomeric compounds and high-strength steel cords for enhanced fire safety and mechanical performance. The standard outlines construction details, including cord arrangement, bonding, and cover thickness. It defines critical performance parameters such as flame resistance, tensile strength, elongation, impact resistance, and electrical conductivity. Testing methods for fire resistance, adhesion, and physical properties are provided. Sampling, inspection, and marking provisions ensure safety, reliability, and compliance in high-risk industrial applications.

9. **IS 14206 (Part 1): 1995 Mechanical Jointing of Plied Textile Reinforced Rubber Conveyor Belting - Code of Practice: Part 1 Hot Vulcanizing**

IS 14206 (Part 1): 1995 provides a code of practice for the mechanical jointing of plied textile-reinforced rubber conveyor belting using hot vulcanizing. Key provisions include recommended procedures for preparing belt ends, aligning, and assembling the joint. It outlines materials required for vulcanizing, such as rubber compounds, curing agents, and adhesives. The standard details the vulcanizing process—pressure, temperature, and curing time—to ensure strong, durable joints. It emphasizes joint geometry, ply matching, and proper bonding techniques. Provisions also include inspection and testing of the finished joint for strength and uniformity. This ensures reliable, long-lasting joints for safe and efficient belt operation.

10. IS 14206 (Part 2): 2001 Mechanical Jointing of Plied Textile Reinforced Rubber Conveyor Belting - Code of Practice: Part 2 Cold Vulcanizing

IS 14206 (Part 2): 2001 provides the code of practice for mechanical jointing of plied textile-reinforced rubber conveyor belting using cold vulcanizing. Key provisions include surface preparation of belt ends, proper alignment, and application of cold vulcanizing adhesives. The standard details suitable adhesive types, curing times, and pressure requirements for effective bonding without heat. It covers joint design, ply matching, and layering to ensure strength and flexibility. Testing and inspection guidelines verify the joint's tensile strength, adhesion, and durability. These provisions ensure reliable, safe, and efficient belt joints when hot vulcanizing is not feasible or practical.

11. Selection, Storage, Installation and Maintenance of Conveyor Belting - Code of Practice (IS 6687 : 2002)

IS 6687: 2002 provides a code of practice for the selection, storage, installation, and maintenance of conveyor belting to ensure optimal performance and longevity. Key provisions include guidelines for selecting belts based on application, load, environment, and operating conditions. It details proper storage methods to prevent damage from moisture, heat, and mechanical stress. Installation instructions cover alignment, jointing, tensioning, and initial testing to avoid premature failure. Maintenance practices emphasize regular inspection, cleaning, tracking, and timely repairs. The standard also highlights safety measures during handling and operation. These provisions help maximize belt life, ensure operational safety, and reduce downtime.