LONYOU

TECHNICAL DATASHEET

1. Description

Ladder Type Stainless Steel Cable Ties are a versatile and robust fastening solution characterized by their unique ladder-like structure along the tie body. This design provides multiple locking points, offering a secure and flexible method for bundling and securing cables, pipes, and other components in a wide range of demanding environments. Manufactured from high-grade stainless steel, these ties deliver excellent tensile strength, durability, and resistance to corrosion, temperature extremes, and vibration. Available in both uncoated and coated versions, Ladder Type ties are a reliable choice for applications where high strength and adaptability are required.

2. Key Features

- **Flexible Ladder Design:** The unique ladder structure provides flexibility, allowing the tie to conform to various shapes and sizes of bundles.
- **Multiple Locking Points:** The "rungs" of the ladder offer numerous points for the locking mechanism to engage, ensuring a secure and potentially stronger hold depending on the load distribution.
- **High Tensile Strength:** Constructed from durable stainless steel to provide strong and reliable bundling.
- **Corrosion, Weathering, and Temperature Resistant:** Inherently resistant to rust and corrosion due to the stainless steel material. Uncoated ties can withstand very high temperatures, while coated versions offer additional protection against specific environmental factors.
- **Self-Locking Mechanism:** Designed for relatively fast and easy installation, often allowing for hand tensioning.
- **Available in Coated and Uncoated Options:** Coated versions (e.g., Polyester) provide electrical insulation, prevent galvanic corrosion, and offer added protection to bundled items and the tie itself.
- **Smooth Edges:** Typically manufactured with smooth, rounded edges to minimize the risk of damage to cable insulation and injury during installation.

3. Associated Products

- **Stainless Steel Cable Tie Tensioning Tools:** Tools designed to apply controlled tension and cleanly cut the excess tail of the cable tie for a secure and professional installation and to maximize tensile strength.

4. Technical Data

- **Material (Tie):** Stainless Steel Grade 304 or 316 (SS316 is recommended for enhanced corrosion resistance, particularly in marine and harsh chemical environments).
- **Material (Coatings):** Polyester or other suitable coating materials (check manufacturer specifications).
- **Tensile Strength:** Varies based on the tie's width and thickness (e.g., 100 lbs, 250 lbs, 667 N, 1112 N). Refer to specific product data sheets for exact values.
- **Operating Temperature (Uncoated):** Approximately -80°C to +538°C (-112°F to 1000°F).
- Operating Temperature (Coated): Typically ranges from -40°C to +150°C (-40°F to 302°F), depending on the coating material.
- **Flammability:** Non-burning (Stainless Steel). Coating material flammability characteristics should be confirmed with the manufacturer.
- **UV Resistance:** Good, particularly for coated versions with UV stabilization.
- **Available Widths:** Commonly available in widths such as 4.6mm, 7.0mm & 10.0mm.
- **Available Lengths:** Offered in a variety of lengths to accommodate diverse bundling diameters.
- **Locking Mechanism:** Self-locking, typically engaging with the ladder-like slots on the tie body.

5.Applications

- Ladder Type Stainless Steel Cable Ties are well-suited for a variety of heavy-duty and demanding applications, including:
- **Industrial Cable Management:** Bundling and securing large or numerous cables and wires in factories and industrial plants.
- **Construction:** Fastening cables, conduits, and other components in building and infrastructure projects.
- **Automotive:** Securing wiring harnesses and components in vehicles, especially in areas subject to heat and vibration.
- **Railway and Mass Transit:** Bundling cables and equipment in railcars and infrastructure.
- **Utility Installations:** Securing cables and equipment in power distribution, telecommunications, and other utility applications.
- **Panel Building:** Organizing and securing wiring within electrical panels and enclosures.
- **Marine and Offshore (with SS316 and/or coating):** Fastening in corrosive marine environments.
- **Applications Requiring Flexibility and Strength:** Where the tie needs to conform to irregular shapes while providing a strong hold.

6.Material Specifications

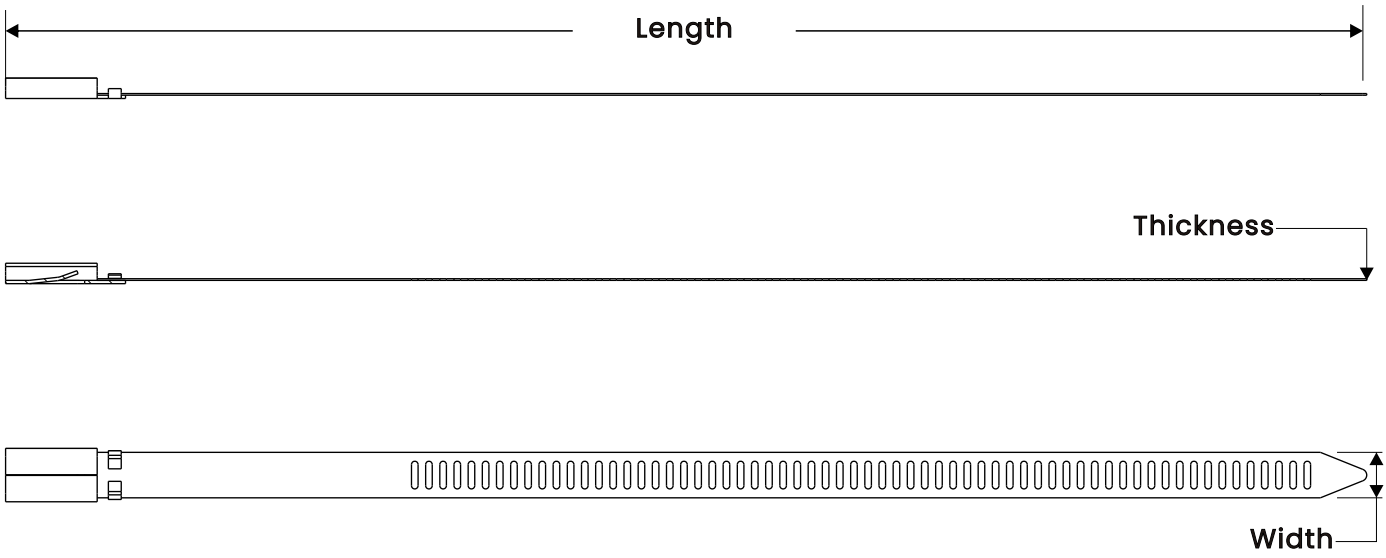
- **Stainless Steel Grade 304 (SS304):** Austenitic stainless steel offering good corrosion resistance in various atmospheric and mild chemical environments. Standard choice for many industrial applications.
- **Stainless Steel Grade 316 (SS316):** Austenitic stainless steel containing molybdenum, providing superior corrosion resistance, especially against chlorides, acids, and in marine environments. Recommended for coastal areas, offshore platforms, and chemical plants.
- **Coating:** Provides electrical insulation between dissimilar metals (preventing galvanic corrosion), offers smoother edges, improves chemical resistance in specific scenarios, and allows for colour coding. Common types include:
- **Polyester:** Good UV resistance, durable, flexible.
- **Nylon 11/12:** Excellent chemical resistance, low water absorption, abrasion resistant.
- **PPA (Polyphthalamide):** High-temperature performance, good chemical resistance.
- **Halogen-Free Options:** Available for specific applications requiring low smoke and zero halogen properties.

7. Installation Guidance

- **Select the Correct Tie:** Choose the appropriate size and material of Ladder Type stainless steel cable tie based on the bundle size and environmental conditions.
- **Prepare the Bundle:** Arrange the cables or items to be bundled neatly.
- **Wrap the Tie:** Wrap the ladder type cable tie around the bundle.
- **Insert the Tail:** Feed the pointed end (tail) of the tie through the self-locking head.
- **Tension the Tie:**
  - **Hand Tensioning:** Pull the tail of the tie by hand to tighten it around the bundle. The ladder design allows the locking mechanism in the head to engage with the slots along the tie as you pull. Pull firmly until the bundle is secure.
  - **Tool Tensioning (Recommended):** For optimal and consistent tensioning, especially in critical applications, use a dedicated stainless steel cable tie tensioning tool. Insert the tail into the tool according to the manufacturer's instructions and apply tension. The tool will ensure proper tightness and often includes a cutting mechanism.
- **Cut Excess Tail (if not using a tool):** If installing by hand, carefully use a suitable cutting tool (like heavy-duty snips) to trim the excess tail close to the head. Be mindful of creating sharp edges and the potential for recoil. Using a tensioning tool with a cutting function provides a safer and cleaner cut.
- **Inspect the Installation:** Check that the cable tie is securely fastened and the bundle is held firmly without excessive tension that could damage the contents.

Safety: Always wear appropriate hand protection, such as cut-resistant gloves, when working with stainless steel cable ties to prevent injuries from potentially sharp edges, particularly during the cutting process.

8. Specifications



Width		Thickness		Length (mm)	Optional Material
inch	mm	inch	mm		
0.18	4.6	0.010	0.25	100 ~2000	SS304 / 316
0.31	7.0	0.010	0.25	150 ~2000	SS304 / 316
0.39	10.0	0.010	0.25	200 ~2000	SS304 / 316
0.50	12.0	0.012	0.30	200 ~2000	SS304 / 316

Note: Any lengths from 150 to 3000mm are available for custom.
The Max Bundle Diameter = (Length-30mm)/3.14.