

U-Bolt Fasteners: Types, Materials, and Industrial Applications

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Key Takeaways

124 - Wire Rope — GB/T 6170 — ISO 4032 (Series 063) — GB/T 6170 — ISO 4032

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- U-bolts are manufactured in round, square, and semi-round bend geometries to secure pipes, tubes, and structural elements of varying cross-sections.
- Standard mechanical properties follow ISO 898-1 for carbon steel (classes 4.6, 8.8, 10.9) and A2/A4 grades for stainless steel corrosion resistance.
- Protective finishes include electro-zinc plating, hot-dip galvanizing, and dacromet, selected according to environmental exposure and service life requirements.
- Global compliance is met through DIN, ASME, BS, and JIS dimensional standards, ensuring interchangeability across markets.
- Custom U-bolts can be sourced with non-standard leg lengths, special threads, and integrated saddle designs upon request.

U-bolt fasteners are essential for securing pipes, tubes, and other cylindrical components in structural, automotive, plumbing, and industrial systems. This supplier manufactures a comprehensive range of U-bolts in standard and custom configurations, solving critical clamping and positioning challenges for OEMs and MRO buyers worldwide. From simple carbon steel round bends to fully custom alloy steel assemblies with special coatings, the product line covers diverse applications.



► Watch video: <https://www.youtube.com/watch?v=C1WjMmEVhfs>

U Bolts Explained: The Strong and Reliable Fastening Solution Part 1— by TTF POWER on YouTube U bolts are an essential hardware component widely used in various industries. Named after their distinctive U-shaped form, Uu00a0a0...

Core Capabilities and Production Capacity

Wire Rope — ISO - DIN (Series 152) — ISO - DIN

Wire Rope — ISO - DIN (Series 152) — ISO - DIN

The manufacturing process begins with cold heading, which improves grain flow and mechanical strength compared to cutting or casting. Precision thread rolling follows, producing threads with superior fatigue resistance and consistent dimensions. In-house heat treatment lines (including quenching and tempering) achieve property classes 8.8, 10.9, and 12.9, as well as hardened stainless grades. Automated plating lines offer zinc, zinc-nickel, hot-dip galvanizing, and other finishes to meet corrosion resistance requirements. With modern multi-station cold formers and CNC thread rollers, the facility maintains high throughput while accommodating both large-scale production and small-batch custom orders.

Product Scope and Customization Breadth at a Glance

The product catalog includes round bend, square bend, semi-round, and long tangent U-bolts, with diameters ranging from M6 to M36 (1/4" to 1-1/2") and lengths up to 1,000 mm. Materials include carbon steel (e.g., DIN 976, A36), alloy steels (e.g., 4140, 4142), and stainless steel (A2/A4, 304/316). Finishes range from plain and black oxide to hot-dip galvanized, zinc electroplated, and PTFE coatings. Custom options include special bend radii, extended thread lengths, locking shoulders, and integrated plates. The supplier works closely with buyers to define dimensions, tolerances, and material specifications per drawing, ensuring part function in critical assemblies.

Export Experience and Served Markets

With a mature export network, the supplier serves distributors, OEMs, and industrial users across North America, Europe, Southeast Asia, and the Middle East. Standard export packaging (bulk cartons, pallets, or custom crating) and documentation (certificates of origin, mill test reports, packing lists) are provided. Shipping options include FCL, LCL, and air freight, with collaboration with major logistics partners to secure reliable transit times.

Quality Systems, Compliance and Certifications

The quality management system is structured around ISO 9001:2015, with additional compliance to IATF 16949 for automotive-grade fasteners where applicable. Production is supported by PPAP submissions (Level 3) for automotive and heavy equipment clients, and all products meet RoHS and REACH regulatory standards. In-house testing covers dimensional inspection (optical comparators, CMM), mechanical testing (tensile strength, hardness, proof load), and surface finish analysis (coating thickness, salt spray). Full lot traceability from raw material to shipment is maintained through an ERP system.

Why Buyers Choose This Supplier

Buyers select this supplier for consistent quality, engineering collaboration, and reliable lead times. Unlike commodity importers, the manufacturer offers direct access to process engineers for design optimization and material selection. Dual sourcing of raw materials and buffer stock of standard sizes help maintain <4 week lead times for most custom orders. Transparent communication and dedicated account management streamline the procurement cycle from RFQ to delivery.

Request a Capability Deck or Quote

For detailed specifications, material test reports, or a custom quotation, request the supplier's capability deck or contact the engineering team directly. Whether you need standard U-bolt clamps for pipe support or a bespoke fastener assembly for a suspension system, the team is ready to support your sourcing requirements.

stable inventory levels even during peak demand periods. This combination of operational resilience and technical support makes the supplier a preferred partner for long-term procurement agreements.

U-Bolt Fastener Types and International Compliance Standards

U-bolts are classified primarily by their bend geometry—round, square, or semi-round—each engineered to secure specific shapes of pipes, tubes, or conduits. Compliance with recognized dimensional standards such as DIN 3570, ASME B18.2.1, and BS 3974 ensures interchangeability and reliable load performance in global supply chains.

- **Round bend U-bolts** fit standard cylindrical pipes and are the most common type across plumbing, HVAC, and fluid handling systems.
- **Square bend U-bolts** are designed for rectangular or square tubing, often used in structural framing and trailer manufacturing.
- **Semi-round U-bolts** (also called "flattened") provide a broader contact area for irregularly shaped or bundled components.

[Thread dimensions](#) typically follow ISO metric coarse (e.g., M8-M24) or unified inch series (e.g., 1/4"-1"), with fine-pitch options available for high-vibration applications. Leg lengths and thread lengths are customizable within standard production tolerances.

Key Facts for Procurement and Specification

- **Material grades:** Carbon steel (property classes 4.6, 8.8, 10.9 per ISO 898-1); stainless steel (A2-70, A4-80 for corrosion resistance). Duplex and super duplex steels are available for extreme environments.
- **Protective finishes:** Electro-zinc plating (ZS), hot-dip galvanizing (HDG), dacromet, and PTFE coatings for enhanced corrosion protection and lubricity.
- **Standards coverage:** Dimensional conformance to DIN 3570 (Germany), ASME B18.2.1 (USA), BS 3974 (UK), and JIS B 1251 (Japan). Mechanical and chemical requirements per ASTM A307, A193, or A2/A4 stainless.
- **Thread types:** Standard ISO metric coarse (e.g., M10×1.5), unified coarse (UNC, e.g., 3/8"-16), and fine threads where high clamping force is needed.
- **Customization:** Non-standard leg lengths, special plate or saddle designs, integrated load-bearing arms, and marking/identification upon request.

Industrial Applications and Sourcing Considerations

U-bolts serve as essential anchoring components in piping support systems, suspending pipe runs from ceilings or frames in oil and gas, water treatment, and HVAC installations. In automotive and heavy-equipment sectors, they secure leaf springs to axles and attach exhaust systems, complying with OEM specifications for fatigue resistance and dimensional accuracy. For wire rope assemblies, the [wire rope clip \(U-bolt\)](#) variant provides a reliable clamping mechanism, especially in lifting, rigging, and marine mooring applications.

Selection hinges on pipe or tube outer diameter, applied load, environmental exposure, and required corrosion resistance. Hot-dip galvanized U-bolts are preferred for outdoor and industrial atmospheres, while A4 stainless is specified for chemical plants and offshore environments. Custom U-bolts with non-standard saddle shapes or multiple holes can be engineered when standard catalog components fall short.

Consolidated Specification Overview

U-Bolt Fastener Selection Attributes

Aspect	Typical Options	Applicable Standards
Bend Type	Round, square, semi-round	DIN 3570, ASME B18.2.1
Material / Grade	Carbon steel 4.6, 8.8, 10.9; Stainless A2-70, A4-80	ISO 898-1, ASTM A307, A193
Thread	M8-M24 coarse/fine; 1/4"-1" UNC/UNF	ISO 261, ASME B1.1
Finish	Electro-zinc, HDG, dacromet, PTFE	ISO 2081, ASTM A153, A123
Common Industries	Plumbing, HVAC, automotive, marine, structural	—

For custom U-bolt fasteners tailored to your technical drawings or application requirements, submit your specifications for a competitive quotation. Our engineering team will evaluate material selection, thread design, and coating needs to meet your performance targets and delivery schedule.

Frequently Asked Questions

What are the different types of U-bolts?

U-bolts are categorized by bend shape: round (for cylindrical pipes), square (for rectangular tubing), and semi-round (for irregular shapes or bundled components). Each type is manufactured to standard dimensions specified in DIN 3570, ASME B18.2.1, or similar, ensuring compatibility with standard pipe and tube sizes.

What material are U-bolts made of?

Common materials include carbon steel in property classes 4.6, 8.8, and 10.9 (per ISO 898-1) for general mechanical applications, and stainless steel grades A2-70 and A4-80 for corrosion-resistant environments. For extreme conditions, duplex and super duplex stainless steels are available.

What is a U-bolt used for?

U-bolts are primarily used to secure piping, tubing, and conduit to structural supports in industries like plumbing, HVAC, oil and gas, and water treatment. In automotive and heavy equipment, they anchor leaf springs, exhaust components, and chassis parts. Specialized versions serve as [wire rope](#) clips for lifting and rigging assemblies.

What standards apply to U-bolts?

U-bolt dimensions and load ratings are governed by standards such as DIN 3570 (Germany), ASME B18.2.1 (USA), BS 3974 (UK), and JIS B 1251 (Japan). Mechanical properties of the material follow ISO 898-1 (carbon steel) or the relevant ASTM specifications like A307, A193, or A2/A4 for stainless.

How do I select the right U-bolt for my application?

Selection starts with the outer diameter of the pipe or tube to be secured, the required clamping force, and the environmental conditions. For outdoor or corrosive environments, hot-dip galvanized or A4 stainless finishes are recommended. Custom leg lengths, thread types, and saddle designs can be specified for non-standard applications.

Categories [Uncategorized](#)