Bandtite®

TECHNICAL DATASHEET

1. Description

U-Bolt Pipe Clamps are U-shaped bolts with screw threads on both ends, designed primarily for securing and supporting pipes, conduit, tubing, or round bars to a structural element or support. The curved "U" section fits around the pipe, and the threaded ends pass through holes in a support member (like a beam, channel, or bracket) and are typically secured with nuts and washers. U-bolts provide a simple yet effective method for anchoring pipework, preventing movement, reducing vibration, and maintaining alignment. They are widely used in various industries, including construction, plumbing, marine, oil and gas, and general industrial applications for both support and guidance of pipelines.

2. Key Features

- **Secure Pipe Support:** Provides a strong and reliable method for clamping and supporting pipes.
- **Versatile Application:** Suitable for a wide range of pipe diameters and materials.
- **Simple Installation:** Easy to install using basic hand tools.
- **Vibration Reduction:** Can help to stabilize pipes and reduce vibration when properly installed.
- **Anchoring and Guiding:** Can be used to rigidly anchor pipes or to guide them while allowing for axial movement, depending on the installation method.
- **Corrosion Resistance:** Available in various materials and finishes (e.g., galvanized steel, stainless steel) to suit different environmental conditions.
- **Load Bearing Capacity:** Designed to support the weight of pipes and their contents.
- **Cost-Effective:** Generally an economical solution for pipe support and clamping.
- **Variety of Shapes:** While the most common is a round bend U-bolt, square bend U-bolts are also available for clamping square or rectangular objects.

3. Associated Products

- Hex Nuts (Standard, Heavy, Lock Nuts)
- Flat Washers
- Spring Washers (Lock Washers)
- Backing Plates / Crossbars / Strut Channels
- Pipe Saddles or Cradles (for some applications)
- Threaded Rods and Couplers
- Beam Clamps

4. Technical Data

- **Type:** U-Bolt Clamp / Pipe Clamp
- **Shape:** Typically Round Bend (for pipes), also available in Square Bend.
- **Common Materials:**
  - **U-Bolt Body:**
    - Carbon Steel (Mild Steel, e.g., A36) - Often with surface treatment.
    - Stainless Steel (e.g., AISI 304/A2, AISI 316/A4) - For corrosion resistance.
    - Alloy Steel - For higher strength requirements.
  - **Nuts & Washers:** Typically made from material compatible with the U-bolt body.
- **Surface Finish/Coating (for Carbon Steel):**
  - Zinc Plating (Electro-galvanized) - Provides moderate corrosion resistance.
  - Hot-Dip Galvanizing (HDG) - Provides superior corrosion resistance for outdoor or harsh environments.
  - Plain Finish (Black Steel / Self-Colour) - Minimal corrosion resistance, often for indoor or temporary use, or when painting is intended.
  - PTFE (Teflon) Coating - For enhanced corrosion resistance, reduced friction, and chemical resistance, especially in marine or offshore applications.
- **Thread Type:** Metric Coarse Thread M8.
- **Dimensions (Key Parameters):**
  - **Nominal Pipe Size (NPS) or Pipe Outside Diameter (OD):** To fit a specific pipe OD.
  - **Rod Diameter (Thread Size):** Diameter of the threaded legs (e.g., M8, 1/2").
  - **Inside Width (Between Legs / "Between Centres"):** The distance between the two threaded legs, corresponding to the pipe OD.
  - **Inside Height (Depth of U):** From the inside top to the start of the threads.
  - **Thread Length:** The length of the threaded portion on each leg.
  - **Overall Height:** Total height of the U-bolt.
- **Included Accessories (Typically):**
  - Two or Four Hex Nuts per U-bolt.
  - Often supplied with Washers (flat and/or spring washers).
  - Sometimes supplied with a backing plate or crossbar.
- **Relevant Standards (May Comply With or Be Referenced):**
  - MSS SP-58 (Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation) - Type 24 U-Bolt.
  - DIN 3570 (U-bolts for pipework).
  - JB/ZQ 4519 (Chinese standard for U-bolts).
  - ASTM standards for material properties (e.g., A36 for carbon steel, A193 for alloy/ss bolts, A194 for nuts).

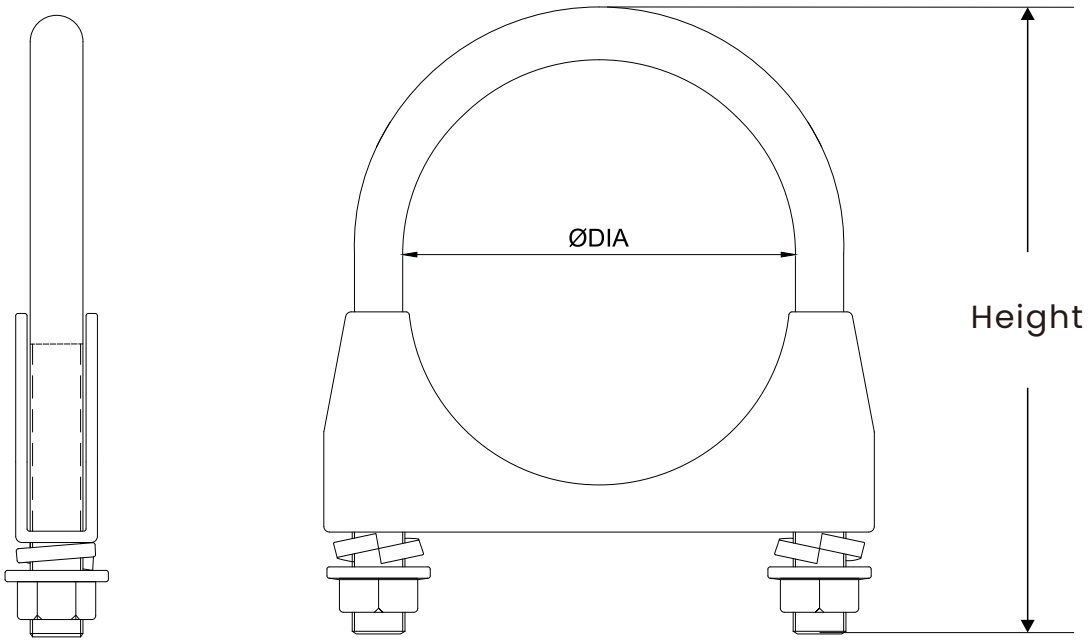
5. Common Applications

- **Pipe Support Systems:** Supporting horizontal or vertical pipe runs in industrial plants, commercial buildings, and infrastructure projects.
- **Construction:** Securing pipes to walls, ceilings, beams, or other structural members.
- **Plumbing:** Supporting water, drainage, and gas pipes.
- **HVAC:** Supporting ductwork and refrigerant lines.
- **Marine & Shipbuilding:** Securing pipes and cables in corrosive saltwater environments (stainless steel or PTFE coated versions are common).
- **Oil & Gas Industry:** Supporting pipelines in processing plants and offshore platforms.
- **Automotive:** Securing exhaust pipes, drive shafts, or other round components.
- **Telecommunications:** Mounting antennas or securing conduit.
- **Agriculture:** Supporting irrigation pipes.
- **DIY Projects:** Various clamping and securing tasks.

6. Installation Guidance

- **Select the Correct U-Bolt Size:** Choose a U-bolt where the inside width matches the outside diameter of the pipe to be clamped. Ensure the rod diameter and material are appropriate for the load and environmental conditions.
- **Prepare Mounting Surface:** Ensure the support structure (beam, wall, channel) is suitable for the load. Drill holes in the support structure corresponding to the U-bolt leg spacing and rod diameter, if not already present.
- **Position U-Bolt:** Place the curved section of the U-bolt around the pipe.
- **Insert Through Support:** Pass the threaded legs of the U-bolt through the pre-drilled holes in the support structure.
- **Install Hardware:**
  - Place washers (if used) over the threaded legs on the opposite side of the support structure.
  - Thread the nuts onto each leg.
- **Tighten Nuts:** Tighten the nuts evenly. For applications requiring specific clamping force or to prevent pipe crushing, use a torque wrench to apply the recommended torque. Ensure the pipe is securely held without being over-tightened, which could damage the pipe or U-bolt.
  - When used as an anchor, tighten snugly against the pipe to restrict all movement.
  - When used as a guide, leave a slight gap between the U-bolt and the pipe surface to allow for axial movement, while still restricting lateral and vertical motion.
- **Inspect:** Check the installation to ensure the U-bolt is secure, the pipe is properly supported, and nuts are tightened correctly.

6. Specifications



Diameter (mm)	Bolt Size (mm)	Plate Thickness (mm)	Height (mm)
25	M8	2.0	53
28	M8	2.0	55
32	M8	2.0	55
38	M8	2.0	66
42	M8	2.0	70
45	M8	2.0	75
48	M8	2.0	76
51	M8	2.0	78
54	M8	2.0	85
57	M8	2.0	85
64	M8	2.0	98
67	M8	2.0	98

Diameter (mm)	Bolt Size (mm)	Plate Thickness (mm)	Height (mm)
70	M8	2.0	98
76	M8	2.0	104
83	M8	2.0	114
89	M8	2.0	116
95	M8	2.0	122
102	M8	2.0	130
110	M8	2.0	130
120	M8	2.0	150
130	M8	2.0	175
140	M8	2.0	185
150	M8	2.0	195

The above measurement data may have errors. All is subject to the actual situation.

7. Maintenance & Safety

- **Regular Inspection:** Periodically inspect U-bolts for signs of corrosion, wear, deformation, or loosening of nuts, especially in critical applications or harsh environments.
- **Material Compatibility:** Ensure the U-bolt material and coating are suitable for the environmental conditions (e.g., moisture, chemicals, temperature) and compatible with the pipe material to prevent galvanic corrosion.
- **Load Limits:** Do not exceed the safe working load of the U-bolt. Consider the weight of the pipe, its contents, and any additional stresses.
- **Proper Tightening:** Avoid over-tightening, which can damage the U-bolt threads, the pipe, or the support structure. Use a torque wrench where specific torque values are required.
- **Sharp Edges:** Be cautious of any sharp edges on threads or cut ends.
- **Safety Equipment:** Wear appropriate personal protective equipment (PPE) such as gloves and safety glasses during installation.

Disclaimer: This datasheet provides general information typical for U-Bolt Pipe Clamps. Specific technical data, materials, load capacities, and installation torque values can vary significantly between different manufacturers and product lines. Always refer to the manufacturer's official documentation and specifications for the particular U-Bolt being considered or used.