

## 1. Description



**Spiral Hose Clamps**, sometimes referred to as "Tiger" clamps, are specialized heavy-duty clamps designed specifically for securing hoses with an external or internal spiral helix, or those with convoluted covers. Unlike standard flat band clamps that may not provide an even seal on such irregular surfaces, these clamps feature a spiral-formed rod or band that is designed to engage with the helix of the hose. This ensures a more positive grip and a tighter, more reliable seal by conforming to the hose's contours. They typically utilize a double bolt and nut tightening mechanism to apply strong and even clamping force. These clamps are essential for applications where a secure, leak-proof connection is required on spiral-reinforced or convoluted hoses.

## 2. Key Features

- **Spiral Design:** The clamping element is a spiral rod or formed band designed to follow and engage the helix of the hose, providing a secure grip between the convolutions.
- **Double Bolt Mechanism:** Typically features two bolts with hex nuts, allowing for high clamping force and even pressure distribution.
- **Enhanced Sealing:** Specifically engineered to provide a superior seal on hoses with uneven or helical surfaces where traditional clamps might fail.
- **Heavy-Duty Construction:** Built for robust applications requiring strong holding power.
- **Directional Specificity:** Often available in clockwise (right-hand spiral) and counter-clockwise (left-hand spiral) versions to match the helix direction of the hose for optimal fit and performance.
- **Hose Protection:** The design aims to clamp securely without damaging the hose's helix or cover.
- **Safety Features (on some models):** May include cap nuts on the bolt ends to prevent injury from sharp bolt edges.
- **Reusable:** Can generally be loosened and retightened multiple times.

## 3. Associated Products

- Hoses with an external or internal reinforcing helix (e.g., PVC suction hose, material handling hose).
- Appropriate wrenches or socket sets for tightening the hex nuts.
- Torque wrench (recommended for applying correct tightening force).

#### 4. Technical Data

- **Type:** Spiral Double Bolt Hose Clamp
- **Common Materials:**
  - Spiral Rod/Band: Stainless Steel (e.g., AISI 304) for corrosion resistance and strength. Zinc-Plated Carbon Steel may also be used for some components or versions.
  - Saddle/Bridge: Stainless Steel or Zinc-Plated Carbon Steel.
  - Bolts & Nuts: Stainless Steel or Zinc-Plated Carbon Steel. Washers and cap nuts (if present) typically match.
  - Material Designations: May be specified by W-grades (e.g., W1 for all zinc-plated steel, W4 for all stainless steel 304) or specific material callouts.
- **Band Design:** Formed spiral rod or shaped flat band designed to engage with hose helix.
- **Bolt Type:** Typically two hex head bolts with corresponding hex nuts.
- **Sizes:**
  - Available to fit a wide range of hose Inside Diameters (ID), commonly from 1-1/2" up to 12" or larger.
  - Sizing is critical and must match the hose OD and helix pattern.
- **Torque Specifications:**
  - Specific tightening torque values vary by clamp size and manufacturer (e.g., 6 ft·lb for smaller sizes, up to 30 ft·lb or more for larger sizes). Always refer to manufacturer recommendations.
  - It is crucial to tighten both nuts equally.
- **Helix Direction:** Available in Clockwise (Right-Hand) and Counter-Clockwise (Left-Hand) spiral configurations. The correct direction must be chosen to match the hose helix.

#### 5. Common Applications

- **Material Handling Hoses:** Securing hoses used for transferring bulk materials (e.g., grains, pellets, powders, woodchips) where spiral construction is common for flexibility and durability.
- **Suction and Discharge Hoses:** Used on PVC suction hoses, agricultural liquid transfer hoses, and industrial vacuum lines with an external or internal helix.
- **Ducting:** Connecting flexible ducting with a spiral wire reinforcement.
- **Construction Industry:** Hoses for water suction/discharge, concrete pumping (on certain hose types). Agricultural Applications: Irrigation hoses, slurry transfer.
- **Waste Management:** Hoses on vacuum trucks.
- Applications where traditional band clamps fail to seal effectively on helical or convoluted hose surfaces.

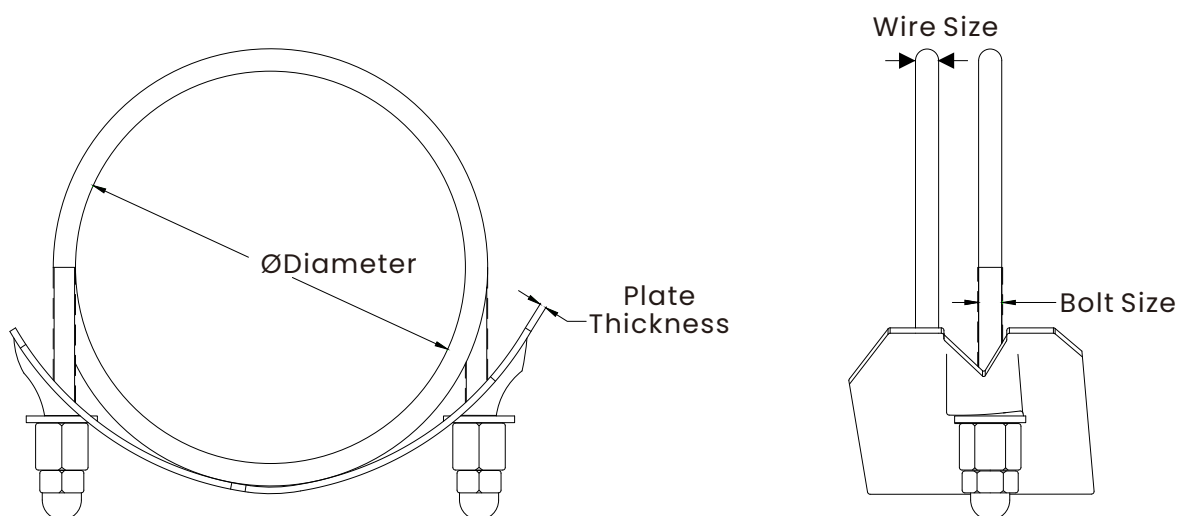
## 6. Installation Guidance

- **Determine Hose Helix Direction:** Identify whether the hose has a clockwise (right-hand) or counter-clockwise (left-hand) spiral. Look at the end of the hose; if the helix spirals away from you in a clockwise direction, it's a clockwise helix.
- **Select the Correct Clamp:** Choose a spiral clamp that matches the hose's outside diameter and the identified helix direction.
- **Position the Clamp:** Place the clamp over the hose before fitting the hose onto the barbed or plain end fitting. Ensure the spiral of the clamp aligns with the helix of the hose.
- **Attach Hose to Fitting:** Push the hose fully onto the fitting.
- **Position Clamp Correctly:** Slide the clamp over the section of the hose that covers the fitting's sealing surface. The spiral element of the clamp should nestle between the hose's helical reinforcements.
- **Tighten Nuts Evenly:** Using appropriate wrenches, tighten both hex nuts progressively and equally. Uneven tightening can lead to poor sealing or clamp damage.
- **Apply Recommended Torque:** If torque specifications are provided by the manufacturer, use a torque wrench to achieve the correct clamping force. Do not overtighten.
- **Multiple Clamps (for larger hoses):** For larger diameter hoses (e.g., 3" ID and above), using two or more clamps per connection is often recommended for a secure seal.

## 7. Maintenance & Safety

- **Regular Inspection:** Periodically inspect clamps for any signs of loosening, corrosion, or damage to the clamp components or hose.
- **Re-tightening:** If necessary, re-tighten nuts, ensuring even pressure and adherence to torque specifications.
- **Material Compatibility:** Ensure the clamp material is suitable for the operating environment (e.g., exposure to chemicals, moisture, temperature).
- **Hose Condition:** Ensure the hose is in good condition before clamping.
- **Sharp Edges:** If cap nuts are not present, be mindful of potentially sharp bolt ends after tightening.
- **Proper Evaluation:** The holding power and sealing effectiveness should be evaluated for each specific application, as hose types and operating conditions can vary significantly.

## 8. Specifications



Diameter		Wire Size (mm)	Plate Thickness (mm)	Nut Size (mm)
inch	mm			
1	28-34	4.3	1.5	M5
1.2	34-40	4.3	1.5	M5
1.5	44-50	4.3	1.5	M5
2	54-60	4.3	1.5	M5
2.2	67-73	4.3	1.5	M5
2.5	71-77	5.2	1.5	M5
2.75	79-85	5.2	1.5	M6
3	88-94	5.2	1.5	M6
3.5	95-102	5.2	1.5	M6
4	108-116	7.0	2.0	M8
4.5	122-130	7.0	2.0	M8
5	134-141	7.0	2.0	M8
5.5	147-155	7.0	2.0	M8
6	160-169	9.0	2.5	M10
6.5	179-188	9.0	2.5	M10

Diameter		Wire Size (mm)	Plate Thickness (mm)	Nut Size (mm)
inch	mm			
7	190-200	9.0	2.5	M10
7.5	200-210	9.0	2.5	M10
8	222-232	9.0	2.5	M10
8.5	230-240	9.0	2.5	M10
9	240-252	9.0	2.5	M10
9.5	268-280	9.0	2.5	M10
10	278-290	9.0	2.5	M10
10.5	295-305	9.0	2.5	M10
11	303-315	9.0	2.5	M10
11.5	313-325	9.0	2.5	M10
12	318-330	9.0	2.5	M10
13	338-350	9.0	2.5	M10
14	358-370	9.0	2.5	M10
15	392-405	9.0	2.5	M10
16	417-420	9.0	2.5	M10

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

**Disclaimer:** This datasheet provides general information typical for Spiral (Tiger) Hose Clamps. Specific technical data, materials, performance characteristics, 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 hose clamp being considered or used.