LONYOU

TECHNICAL DATASHEET

1. Description

Heavy Duty Hose Clamps are robust fastening devices engineered for securing hoses in demanding applications where high clamping forces, strong sealing capabilities, and resistance to challenging conditions are required. These clamps are designed to handle high pressures and are often used with reinforced or less pliable hoses. Characteristically, they feature a solid, often wider band, and a strong tightening mechanism, such as a high-tensile bolt and nut system, sometimes with specialized housing or bridge designs to ensure even pressure distribution and protect the hose. They are built for durability and reliable performance in critical industrial, automotive, marine, agricultural, and construction applications.

2. Key Features

- **High Clamping Force & Band Tension:** Engineered to provide exceptionally strong and consistent sealing pressure, suitable for high-pressure lines and tough hose materials.
- **Robust Construction:** Features a heavy-gauge, often wider band, and a durable tightening mechanism (e.g., bolt, nut, trunnions) designed to withstand high installation torques and operational stresses.
- **Enhanced Sealing Integrity:** Designed to create a secure, leak-proof connection even under significant pressure, vibration, or on hoses with high shore hardness.
- **Hose Protection:** Often incorporate rolled band edges or a separate bridge piece to protect the hose from damage during tightening and under operational stress.
- **Corrosion Resistance:** Typically manufactured from high-grade stainless steel or specially treated carbon steel to resist corrosion in harsh environments, including acidic or saltwater conditions.
- **Vibration Resistance:** The strong and secure fastening mechanism provides excellent resistance to loosening caused by mechanical vibrations.
- **Durability:** Built for long service life in demanding industrial and heavy-duty applications.
- **Ease of Installation:** Despite their robust nature, they are generally designed for straightforward installation using standard manual or power tools.
- **Reusable (Often):** Many designs can be loosened and re-tightened multiple times.
- **Mechanically Locked Closure (on some designs):** Some designs feature mechanically interlocked closures rather than spot welds, enhancing strength and corrosion resistance at the closure point.
- **Reinforced Band Loops/Eyes:** The points where the bolt engages with the band are often reinforced to withstand higher torques without deformation.

3. Technical Data

- **Type:** Heavy-Duty Bolt Clamp / High-Torque Worm Drive (less common for the highest duties but some robust worm drives exist) / Solid Band Clamp
- **Common Materials:**
  - **Band & Housing/Bridge:**
    - Stainless Steel (e.g., AISI 304 / EN 1.4301, AISI 316 / EN 1.4401, or other acid-resistant grades like EN 1.4571, EN 1.4510/1.4511).
    - Carbon Steel (often with high-quality zinc plating or other protective coatings).
  - **Bolt/Screw & Nut:**
    - High-Tensile Carbon Steel (often zinc-plated, clear or yellow chromate passivated).
    - Stainless Steel (various grades, sometimes different from the band for optimal strength/corrosion properties).
    - Special alloy steels for extreme conditions.
- **Trunnions/Inserts (if applicable):** Typically stainless steel or robust plated steel.
- **Material Designations (Common W-Grades or equivalents):**
  - **W2 Equivalent:** Band and housing/bridge typically stainless steel; bolt/nut often plated carbon steel.
  - **W4 Equivalent:** All major components made from a good grade of stainless steel 304.
  - **W5 Equivalent:** All major components made from a high grade of stainless steel 316, offering superior corrosion resistance.
- **Band Design:** Typically a solid, non-perforated band for maximum contact and even pressure. Edges are rolled or deburred.
- **Band Widths (Common):** 18mm, 20mm, 24mm, 26mm or more.
- **Band Thickness (Typical):** 0.6mm, 0.8mm, 1.0mm, 1.2mm, 1.5mm, 1.7mm.
- **Bolt/Screw Type:**
  - Hexagonal Head Bolt (common sizes M6, M8, M10, M12 or imperial equivalents).
  - Sometimes features special bolt designs with integrated spacers or reinforced heads.
  - Nuts are often self-locking types (e.g., nylon insert) or heavy-duty hex nuts.
- **Clamping Diameter Range:**
  - Available in a wide array of sizes, typically starting from around 17mm up to very large diameters (e.g., 300mm, 500mm, or custom sizes for specific applications).
- **Torque Specifications:**
  - Recommended Installation Torque: Significantly higher than standard clamps, often ranging from 10 Nm to 30 Nm or more, depending on size and design.
  - Failure/Breaking Torque: Considerably higher than the recommended installation torque, indicating the clamp's ultimate strength and safety margin.
- **Relevant Standards:** DIN 3017, BS 5315, Lloyd's Register Type Approval.

4. Common Applications

- **Industrial Machinery:** Securing high-pressure hoses in hydraulic and pneumatic systems, pumps, compressors, and processing equipment.
- **Automotive & Heavy-Duty Vehicles:** Turbocharger hoses, charge air cooler (CAC) connections, exhaust systems, heavy-duty coolant and air intake lines, fuel lines.
- **Marine & Shipbuilding:** Engine exhaust systems, fuel lines, seawater intake/discharge hoses, and other critical connections requiring high strength and corrosion resistance.
- **Agricultural Machinery:** Hydraulic systems, irrigation hoses, slurry transfer lines.
- **Construction Equipment:** Hydraulic hoses, high-pressure air lines, concrete pumping hoses.
- **Mining Industry:** Slurry and dewatering hoses, ventilation ducting.
- **Chemical Processing:** Securing hoses handling various chemicals (high-grade stainless steel and material compatibility are essential).
- **Oil and Gas Industry:** Various high-pressure hose applications.
- **Suction and Pressure Hoses:** Especially those with high shore hardness or reinforced construction.

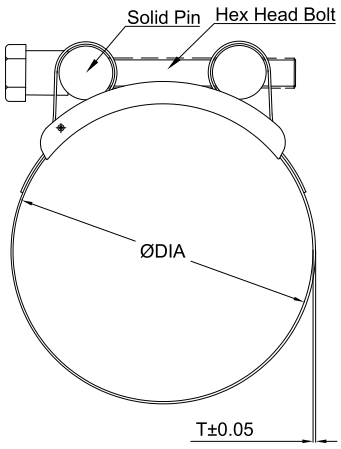
5. Installation Guidance

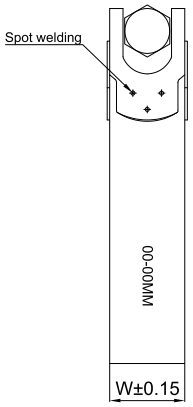
- **Select the Correct Clamp Size:** Choose a clamp where the hose's outside diameter (OD) falls within the clamp's specified adjustment range.
- **Inspect Components:** Ensure the hose, fitting, and clamp are clean and free from damage or debris.
- **Position the Clamp:** Slide the clamp over the hose before fitting the hose onto the spigot or pipe.
- **Attach Hose to Fitting:** Push the hose fully onto the fitting until it is properly seated.
- **Position Clamp Correctly:** Place the clamp over the sealing area of the hose on the fitting, typically just behind any barb or raised section. Ensure the band is straight and the tightening mechanism is accessible.
- **Tighten the Clamp:**
  - Engage the bolt with the nut and trunnions/housing.
  - Tighten the bolt(s) progressively and evenly (if multiple bolts).
  - It is highly recommended to use a torque wrench to apply the manufacturer's specified tightening torque. This ensures optimal sealing performance and prevents over-tightening, which could damage the hose, fitting, or the clamp itself.
- **Inspect:** Check that the clamp is seated correctly, providing even pressure around the entire circumference, and is tightened to the correct torque.

LONYOU

TECHNICAL DATASHEET

6. Specifications - Single Bolt

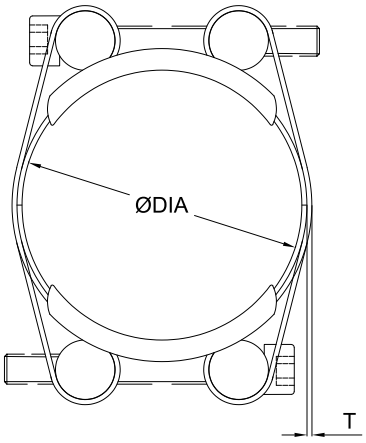


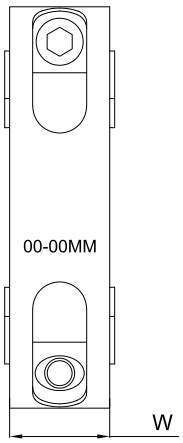


Diameter (mm)	Band Width (mm)	Thickness(mm)		Bolt
		W1	W2/W4/W5	
17-19	18	0.6	0.6	M5X40
20-22	18	0.6	0.6	M5X40
23-25	18	0.6	0.6	M5X40
26-28	18	0.6	0.6	M5X40
29-31	20	0.8	0.6	M6X50
32-35	20	0.8	0.6	M6X50
36-39	20	0.8	0.6	M6X50
38-41	20	0.8	0.6	M6X50
40-43	20	0.8	0.6	M6X50
44-47	22	1.2	0.8	M6X55
48-51	22	1.2	0.8	M6X55
52-55	22	1.2	0.8	M6X55
56-59	22	1.2	0.8	M6X55
60-63	22	1.2	0.8	M6X55
64-67	22	1.2	0.8	M6X55
68-73	24	1.5	0.8	M8X70
74-79	24	1.5	0.8	M8X70
80-85	24	1.5	0.8	M8X70
86-91	24	1.5	0.8	M8X70
92-97	24	1.5	0.8	M8X70
98-103	24	1.5	0.8	M8X70
104-112	24	1.5	0.8	M8X70
113-121	24	1.5	0.8	M8X70
122-130	24	1.5	0.8	M8X70
131-139	26	1.7	1.0	M10X100
140-148	26	1.7	1.0	M10X100
149-161	26	1.7	1.0	M10X100
162-174	26	1.7	1.0	M10X100
175-187	26	1.7	1.0	M10X100
188-200	26	1.7	1.0	M10X100
201-213	26	1.7	1.0	M10X100
214-226	26	1.7	1.0	M10X100
227-239	26	1.7	1.0	M10X100
240-252	26	1.7	1.0	M10X100

Please contact sales for more information about other sizes.

7. Specifications - Double Bolt





Diameter (mm)	Band Width X Thickness(mm)		Bolt
	W1	W4/W5	
30-40	20	1.0	M6X45
35-45	20	1.0	M6X45
40-50	20	1.0	M6X45
45-55	20	1.0	M6X45
50-60	20	1.0	M6X45
55-65	20	1.0	M6X45
60-70	20	1.0	M6X45
65-75	20	1.0	M6X45
70-80	20	1.0	M6X45
75-85	20	1.0	M6X45
80-90	20	1.0	M6X45
85-95	20	1.0	M6X45
90-100	24	1.0	M8X60
100-110	24	1.0	M8X60
110-120	24	1.0	M8X60
120-130	24	1.0	M8X60
130-140	24	1.0	M8X60
140-150	24	1.0	M8X60
150-160	24	1.0	M8X60
160-170	24	1.0	M8X60
170-180	24	1.0	M8X60
180-190	24	1.0	M8X60
190-200	24	1.0	M8X60
200-210	24	1.0	M8X60
210-220	24	1.0	M8X60
220-230	24	1.0	M8X60
230-240	24	1.0	M8X60
240-250	24	1.0	M8X60
250-260	24	1.0	M8X60
260-270	24	1.0	M8X60
270-280	24	1.0	M8X60
290-300	24	1.0	M8X60

Please contact sales for more information about other sizes.

8. Maintenance & Safety

- **Proper Installation Torque:** Adherence to the specified installation torque is critical for achieving the designed clamping force and ensuring a reliable, leak-free seal. Under-tightening can lead to leaks or hose blow-off, while over-tightening can damage the hose, fitting, or the clamp.
- **Regular Inspection:** In critical applications or harsh environments, periodically inspect clamps for any signs of corrosion, damage, or loosening. Re-torque if necessary, following manufacturer guidelines.
- **Material Compatibility:** Ensure the clamp materials are compatible with the operating environment (e.g., fluids, chemicals, temperature, saltwater exposure) to prevent corrosion and material degradation.
- **Hose Condition:** Ensure the hose is in good condition and suitable for the application pressure and temperature before clamping.
- **Safety Equipment:** Always wear appropriate personal protective equipment (PPE) such as gloves and safety glasses during installation, especially when working with high-tension clamps or in potentially hazardous environments.

9. Associated Products

- Reinforced Rubber Hoses (e.g., wire-braided, textile-reinforced)
- Silicone Hoses (especially in high-temperature applications)
- Industrial PVC and Composite Hoses
- Torque Wrenches (essential for correct and safe installation)
- Socket Sets and Spanners

Disclaimer: This datasheet provides general information typical for Heavy Duty 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.