LONYOU

TECHNICAL DATASHEET

1. Description

Spring Band Hose Clamps, also known as constant tension band clamps or spring steel band clamps, are self-tensioning sealing components designed to provide a consistent clamping force on hoses, particularly in applications subject to temperature fluctuations and vibration. These clamps are typically a single piece of spring steel formed into a band with protruding tabs or "ears" that are squeezed together to expand the clamp for installation or removal. Once released, the inherent spring tension of the band exerts a continuous radial pressure on the hose, automatically compensating for the expansion and contraction of the hose and fitting materials due to temperature changes. This helps to maintain a reliable, leak-proof seal over time. They are commonly used in automotive cooling systems, air intake systems, and various industrial and appliance applications.

2. Key Features

- **Constant Tension:** The primary feature is their ability to maintain a relatively constant clamping force as hoses expand and contract with temperature changes, preventing "cold flow" leaks.
- **Self-Adjusting:** Automatically adapts to changes in hose diameter due to thermal cycling or material compression set.
- **Vibration Resistance:** The continuous spring tension helps to keep the clamp secure and resist loosening under vibratory conditions.
- **Uniform Pressure Distribution:** Designed to spread the clamping force evenly around the circumference of the hose for an effective seal.
- **Easy Installation and Removal:** Can be quickly installed or removed using specialized pliers that spread the ears.
- **Compact and Lightweight Design:** Generally have a low profile and are lightweight, making them suitable for applications with space constraints.
- **Cost-Effective for Mass Production:** Often an economical choice for high-volume OEM applications.
- **Tamper-Resistant (to some degree):** Less prone to casual tampering compared to screw-type clamps as specialized pliers are typically needed for removal.
- **No Over-Tightening Issues:** The clamping force is determined by the spring properties, reducing the risk of over-tightening and damaging the hose or fitting, which can occur with screw-type clamps.

3. Technical Data

- **Type:** Spring Band Clamp / Constant Tension Clamp / Self-Compensating Hose Clamp
- **Common Materials:**
  - High-strength Spring Steel 65Mn.
  - Austempered Carbon Steel.
  - Stainless Steel (select sizes or specific application types).
- **Surface Finish/Coating (for Carbon Steel):**
  - Zinc Plating (electro-galvanized, often with a clear or yellow dichromate passivation for enhanced corrosion resistance).
  - Phosphate Coating.
  - Multi-layered coatings (e.g., zinc-containing base coat with an organic top coat) for extended corrosion protection (e.g., 720h salt spray resistance).
  - Dacromet or similar zinc-rich paint.
- **Band Widths (Typical):** 6mm, 8mm, 10mm, 12mm, 15mm
- **Band Thickness (Typical):** Ranges from approximately 0.4mm to 2.0mm, depending on the clamp size and design.
- **Clamping Diameter Range:**
  - Available in a wide range of nominal diameters, from very small (e.g., 7mm, 8mm, 9mm) up to larger sizes (e.g., 52mm, 60mm or more).
  - Each clamp size has a specific operating range (minimum and maximum diameter it can effectively clamp).
- **Operating Temperature Range (Typical for steel with standard coatings):**
  - Approximately -40°C to +120°C. Some specialized coatings or materials may extend this range (e.g., up to 210°C).
- **Pressure Rating:**
  - Generally suitable for low to medium pressure applications. Specific pressure capabilities depend on the clamp size, hose material, fitting design, and installation (e.g., connections up to 11 bar may be possible).
- **Relevant Standards:**
  - DIN 3021: A German standard that specifies characteristics for spring band clamps, including dimensions, materials, design, and technical delivery conditions.
  - RoHS compliant (regarding hazardous substances).

4. Common Applications

- **Automotive:** Coolant hoses, heater hoses, air intake systems, fuel lines (low pressure), vacuum hoses, power steering return lines.
- **Heavy Goods Vehicles (Trucks & Buses):** Similar applications to automotive, often with larger diameter hoses.
- **Agricultural Equipment:** Fluid and air lines on tractors and other machinery.
- **Industrial Equipment:** Low-pressure fluid transfer, pneumatic lines, machine cooling systems.
- **Household Appliances:** Washing machines, dishwashers.
- **Marine Engines:** Cooling systems (material selection is critical for corrosion resistance).
- **Lawn Mowers and Small Engines:** Fuel lines, air lines.
- **Air Conditioning Systems:** Refrigerant lines (low pressure side) or drain hoses.

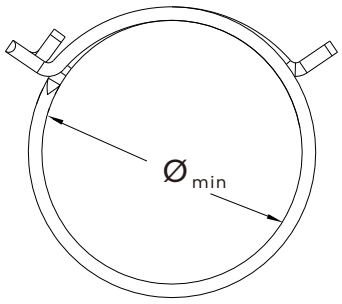
5. Associated Products

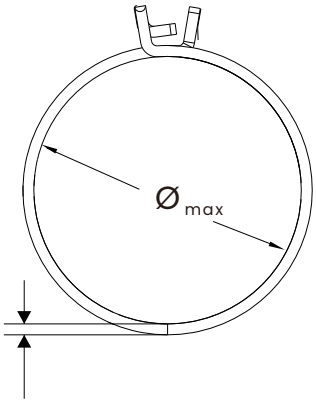
- Spring Band Clamp Pliers: Specialized pliers are required for safe and efficient installation and removal. These pliers are designed to grip the ears and expand the clamp.
  - Standard jaw pliers.
  - Rotating jaw pliers (for better access in tight or angled positions).
  - Pliers with locking mechanisms to hold the clamp open.
- Rubber Hoses (EPDM, Silicone, Neoprene)
- Plastic Tubing
- Barbed Fittings

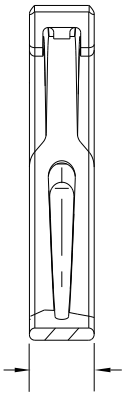
6. Installation Guidance

- **Select the Correct Clamp Size:** Choose a spring band clamp where the hose's outside diameter (OD) with the fitting inserted falls within the clamp's specified operating range. The clamp should provide adequate tension without being over-stressed or too loose.
- **Expand the Clamp:** Using the appropriate spring band clamp pliers, grip the ears of the clamp and squeeze the plier handles to expand the clamp's diameter.
- **Position the Clamp:** While holding the clamp open with the pliers, slide it over the end of the hose.
- **Attach Hose to Fitting:** Push the hose fully onto the barbed or plain end fitting.
- **Position Clamp Correctly:** Slide the expanded clamp into the correct position over the sealing area of the hose on the fitting. This is typically just behind the largest diameter of the barb.
- **Release the Clamp:** Slowly and carefully release the pressure on the plier handles, allowing the clamp to contract and apply even pressure around the hose. Ensure the clamp is seated properly and not skewed.
- **Inspect:** Visually check that the clamp is correctly positioned and providing a uniform grip around the hose.

7. Specifications







Diameter	Band Size(mm)	
	Width	Thickness
4	6	0.4
5	6	0.6
6	6	0.6
7	6	0.6
8	8	0.7
9	8	0.7
9.5	8	0.7
10	8	0.8
10.5	8	0.8
11	8	0.8
11.5	8	0.8
12	8	0.8
12.5	8	0.8
13	10	1.0
13.5	10	1.0
14	10	1.0
14.5	10	1.0
15	10	1.0
16	12	1.0
17	12	1.0
18	12	1.0

Diameter	Band Size(mm)	
	Width	Thickness
19	12	1.0
20	12	1.0
21	12	1.2
23	12	1.2
24	12	1.2
25	12	1.2
26	12	1.2
27	15	1.5
28	15	1.5
29	15	1.5
30	15	1.5
33	15	1.8
35	15	1.8
36	15	1.8
39	15	1.8
42	15	1.8
44	15	1.8
45	15	1.8
47	15	2.0
52	15	2.0
60	15	2.5

Please contact sales for more information about other sizes.

8. Maintenance & Safety

- **Use Correct Tools:** Always use specialized spring band clamp pliers for installation and removal. Using incorrect tools (e.g., standard pliers) can damage the clamp, injure the user, or result in improper installation.
- **Inspect Periodically:** Check clamps for signs of corrosion, cracking, or loss of tension, especially in critical applications or harsh environments.
- **Material Compatibility:** Ensure the clamp material and any coatings are compatible with the operating environment (temperature, fluids, chemicals) to prevent premature failure.
- **Hose Condition:** Use on hoses that are in good condition and of the correct size for the fitting and clamp.
- **Safety Equipment:** Wear safety glasses during installation and removal, as clamps are under tension and could slip or spring off if not handled correctly. Gloves can protect hands.
- **Avoid Over-Stretching:** Do not attempt to expand a clamp beyond its designed range, as this can permanently deform it and reduce its clamping force.
- **Proper Storage:** Store clamps in a dry environment to prevent corrosion if they are made of carbon steel.

Disclaimer: This datasheet provides general information typical for Spring Band Hose Clamps. Specific technical data, materials, performance characteristics, and application suitability can vary significantly between different manufacturers and product lines. Always refer to the manufacturer's official documentation and specifications (e.g., DIN 3021) for the particular hose clamp being considered or used.