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> [Hilitand M6 Carbon Steel Hex Socket Ball Spring Plungers Set \(10pcs\) User Manual](#)

Hilitand M6X10

Hilitand M6 Carbon Steel Hex Socket Ball Spring Plungers Set (10pcs) User Manual

1. PRODUCT OVERVIEW

The Hilitand M6 Carbon Steel Hex Socket Ball Spring Plungers are precision mechanical components designed to provide controlled pressure and accurate positioning in various applications. This set includes 10 pieces of M6x10 plungers, crafted from durable carbon steel, ensuring reliability and longevity. They are commonly used in jigs, fixtures, molds, and automated machinery to hold, locate, or eject parts.



Image 1.1: A general view of the Hilitand M6 ball spring plungers, highlighting both the ball and hex socket ends.

2. SPECIFICATIONS

Specification	Detail
Material	Carbon Steel
Type/Size	M6x10 (M6 Screw Thread, 10mm Length)
Quantity	10 pieces per set
Thread Type	Metric (M6)
Drive Type	Hex Socket
Approximate Weight (per piece)	1.8g (based on total weight of 18g for 10 pieces)

3. KEY FEATURES

- **Durable Carbon Steel Construction:** Manufactured from high-quality carbon steel for strength and

long-lasting performance in industrial environments.

- **Hex Socket Drive:** Features a hex socket for easy and secure installation and removal using an Allen key.
- **Spring-Loaded Ball:** Provides consistent and reliable pressure for accurate positioning, indexing, or detent applications.
- **Versatile Application:** Suitable for a wide range of mechanical devices, including clamps, molds, jigs, fixtures, and automated machinery.
- **Convenient Pack Size:** Supplied in a set of 10 pieces, offering ample supply for multiple projects or replacements.

4. INSTALLATION INSTRUCTIONS

Proper installation ensures the optimal function and longevity of the ball spring plungers. Follow these steps for secure mounting:

1. **Prepare the Mounting Hole:** Ensure the receiving hole is accurately drilled and tapped with an M6 thread. The depth of the hole should accommodate the plunger's length (10mm) without bottoming out prematurely, allowing for proper spring compression.
2. **Clean the Threads:** Before installation, clean both the plunger's threads and the receiving hole's threads to remove any debris, oil, or contaminants that could impede proper seating or cause binding.
3. **Insert the Plunger:** Carefully thread the ball spring plunger into the prepared hole by hand to ensure it starts correctly and avoids cross-threading.
4. **Tighten with Hex Key:** Use an appropriate hex key (Allen key) to tighten the plunger. Apply firm but not excessive torque. Over-tightening can damage the threads or the plunger itself. Tighten until the plunger is seated securely and the ball mechanism operates freely.
5. **Verify Function:** After installation, manually depress the ball to ensure it moves smoothly and returns to its extended position under spring tension.



Image 4.1: The hex socket end of the plunger, where an Allen key is inserted for installation.

5. OPERATION

Ball spring plungers function by providing a spring-loaded ball that exerts a controlled force against a mating surface. This force is used for:

- **Positioning:** Guiding and holding components in a specific location.
- **Indexing:** Creating distinct stopping points or detents for rotational or linear movement.
- **Clamping:** Applying light pressure to secure workpieces.
- **Ejecting:** Pushing components out of a fixture or mold.

The spring inside the plunger ensures that the ball maintains constant contact and pressure, retracting when force is applied and extending when the force is removed, thus facilitating repeatable actions.



Image 5.1: The ball end of the plunger, which provides the spring-loaded contact.

6. MAINTENANCE

To ensure the continued reliable operation of your Hilitand ball spring plungers, consider the following maintenance guidelines:

- **Regular Inspection:** Periodically inspect plungers for signs of wear, corrosion, or damage to the ball, spring, or threads.
- **Cleaning:** Keep the plungers and their mating surfaces free from dirt, chips, and other debris. A clean, dry cloth or compressed air can be used for cleaning. Avoid harsh chemicals that may damage the material.
- **Lubrication (Optional):** In certain environments, a light application of a suitable lubricant to the ball and spring mechanism may help reduce friction and prevent corrosion. Consult with a lubrication specialist if unsure.
- **Replacement:** If a plunger shows significant wear, reduced spring tension, or damage, replace it immediately to maintain accuracy and prevent potential issues in your application.

7. TROUBLESHOOTING

If you encounter issues with your ball spring plungers, consider the following common problems and solutions:

- **Plunger is Stuck or Not Retracting:**

- **Cause:** Debris in the mechanism, damaged spring, or improper installation (over-tightened).
- **Solution:** Remove the plunger, clean thoroughly, inspect for damage. If damaged, replace. Reinstall carefully, ensuring not to over-tighten.

- **Insufficient Pressure or Holding Force:**

- **Cause:** Worn spring, incorrect plunger size for the application, or plunger not fully seated.
- **Solution:** Verify the plunger is fully seated. If the spring is weak, replace the plunger. Ensure the plunger's spring force is appropriate for the application's requirements.

- **Damage to Mating Surface:**

- **Cause:** Excessive force, abrasive debris, or improper alignment.
- **Solution:** Inspect the mating surface for burrs or damage. Ensure proper alignment during operation. Clean the area regularly.

8. WARRANTY AND SUPPORT

Hilitand products are manufactured to high-quality standards. For specific warranty information or technical support regarding your M6 Carbon Steel Hex Socket Ball Spring Plungers, please refer to the product packaging or contact Hilitand customer service directly through their official website or authorized distributors. Please provide your product model number (M6X10) and purchase details when seeking support.