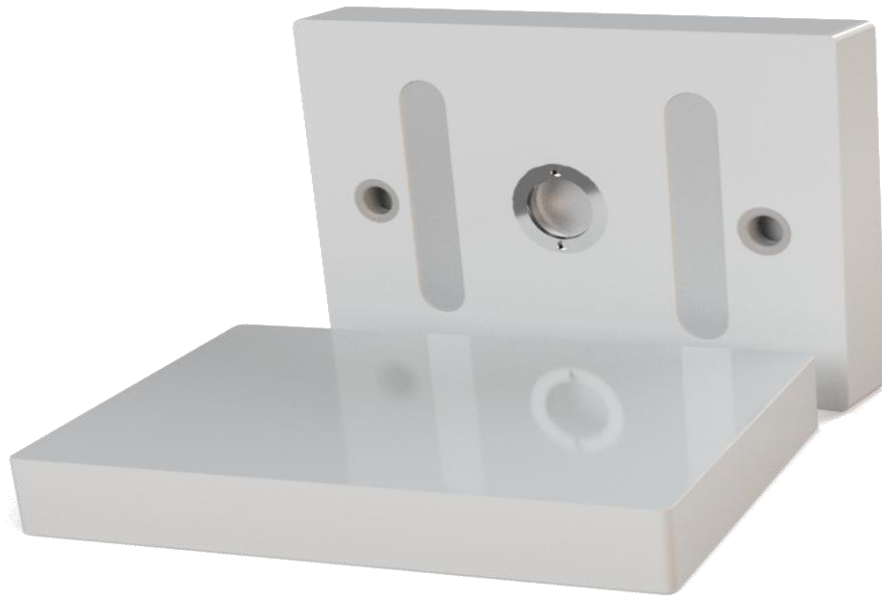


QPS-100 Pallet System User Manual



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1 Introduction

Thank you for choosing the QPS-100 Pallet System by D-RAZTEH. This innovative system is designed to optimize CNC machining by enabling rapid, precise, and repeatable pallet changes, reducing downtime and enhancing productivity. This manual provides detailed instructions for safe installation, operation, and maintenance of the QPS-100. Please read it thoroughly before use and keep it for future reference.

2 Safety Instructions

To ensure safe operation of the QPS-100, adhere to the following guidelines:

- **General Safety:**

- Only trained personnel familiar with CNC machinery should install or operate the QPS-100.
- Read this manual fully before using the system.
- Use the system only for its intended purpose: pallet clamping on CNC machines.

- **Mechanical Safety:**

- Ensure all components are securely fastened before operation to prevent movement or detachment.
- Do not exceed the maximum clamping force (6,000 N)
- Keep hands and tools clear of the clamping mechanism during locking/unlocking.

- **Pneumatic Safety:**

- Use a regulated air supply (consult technical documentation for pressure) to avoid damage to the pneumatic mechanism.
- Disconnect the air supply before performing maintenance or adjustments.
- Inspect air hoses for wear or leaks before each use.

- **Workplace Safety:**

- Wear appropriate personal protective equipment (PPE), such as safety glasses and gloves, when handling pallets or operating the CNC machine.
- Keep the work area clean and free of obstacles to prevent accidents.

WARNING: Improper use may result in equipment damage, injury, or reduced system performance.

3 Package Contents

Verify that the following items are included in the QPS-100 package:

- QPS-100 Base Unit (pneumatic clamping mechanism with positioning pins)
- Pallet(s) (size: 180 × 260 × 34 mm or 220 × 350 × 34 mm, as ordered)
- Air Hose Connector (compatible with standard pneumatic systems)

If any items are missing or damaged, contact D-RAZTEH immediately (see Section 10).

4 Product Overview

The QPS-100 Pallet System is a modular, precision-engineered solution for rapid and repeatable workpiece clamping on CNC machines. It minimizes setup time by allowing off-machine workpiece preparation and quick pallet swaps with micron-level accuracy.

Key Features:

- Rapid pallet change in seconds without recalibration.
- High precision with conical guides and positioning pins, ensuring repeatability within microns.
- Robust design with hardened stainless steel contact surfaces and aluminum 6082 pallets.
- Pneumatic clamping with automatic spring locking and air release.
- Flexible mounting via anodized aluminum housing.
- Modular system adaptable to various CNC machines.

Components:

- **Base Unit:** Pneumatic clamping mechanism, positioning pins, and locking system.
- **Pallet:** Aluminum base with hardened stainless steel locking insert and precision-ground bushings.
- **Positioning Kit:** Locking ring and bushings for custom pallet fabrication.

5 Installation and Setup

5.1 Preparation

- Inspect components for damage.
- Clean the CNC table and QPS-100 components.
- Verify a stable compressed air source (consult technical documentation).

5.2 Mounting the Base Unit

1. Place the base unit on the CNC table, aligning with the machining area.
2. Secure using bolts (select based on machine's T-slot or mounting specifications).
3. Connect the air hose to the pneumatic connector and test for leaks.

5.3 Preparing Pallets

- **Standard Pallets:** Verify locking insert and bushings; clean surfaces.
- **Custom Pallets:** Use the positioning kit and technical documentation to fabricate pallets with tight tolerances (aluminum 6061-T6 recommended).

5.4 Initial Calibration

- Align pallet bushings with base unit's conical guides.
- Lock the pallet using the pneumatic system.
- Verify alignment with a dial indicator or CMM.
- Adjust CNC work offset if necessary.

6 Operating Instructions

6.1 Locking a Pallet

1. Mount the workpiece on the pallet.
2. Align pallet bushings with base unit guides and lower until seated.
3. Spring mechanism locks automatically (6,000 N force).

6.2 Unlocking and Swapping Pallets

1. Supply compressed air to release the locking mechanism.
2. Lift the pallet straight up.
3. Insert a new pallet and repeat locking process.

6.3 Best Practices

- Pre-prepare pallets off-machine.
- Inspect bushings and inserts regularly.
- Avoid overloading pallets.

7 Maintenance and Care

- **Cleaning:** Use a dry, lint-free cloth; avoid solvents.
- **Inspection:** Check contact surfaces and bushings for wear; verify pneumatic system.
- **Lubrication:** Apply light machine oil to locking mechanism if specified.
- **Storage:** Store in a dry, dust-free environment.

8 Troubleshooting

Issue	Possible Cause	Solution
Pallet not locking	Debris in guides/bushings	Clean surfaces.
	Weak spring	Contact D-RAZTEH for parts.
Pallet not releasing	Low air pressure	Check air supply and leaks.
	Pneumatic blockage	Clean air hose/connector.
Poor accuracy	Worn bushings	Replace bushings.
	Misaligned base	Realign base unit.

Contact D-RAZTEH for unresolved issues.

9 Technical Specifications

- **Pallet Dimensions and Weight:**
 - 180 × 260 × 34 mm: 4.4 kg
 - 220 × 350 × 34 mm: 7.2 kg
- **Materials:**
 - Base: Anodized aluminum, hardened stainless steel, hardened tool steel
 - Pallet: Aluminum 6082
- **Clamping Force:** 6,000 N
- **Repeatability:** < 10 micron

- **Pneumatic Requirements:** Compressed air (per technical documentation)
- **Environment:** Industrial CNC machining

10 Contact Information

D-RAZTEH

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- Website: www.d-razteh.com