

Supreme Compact Spot Cooler

Installation, Operation & Maintenance Manual

The **Supreme Compact Spot Cooler** is an engineered vortex-tube system designed for high-efficiency thermal management. To ensure maximum cooling capacity and longevity, please follow these professional installation guidelines.

I. Professional Installation Standards

For the Supreme Compact Spot Cooler to reach its rated temperature drop of up to 100°F (55°C) your compressed air infrastructure must meet the following criteria:

- **Optimal Pressure:** Maintain a consistent supply pressure between **80 and 100 PSIG** (5.5 to 6.9 bar). Pressures exceeding 125 PSIG do not significantly increase cooling and may cause unnecessary wear.
- **High-Flow Plumbing:** Minimize pressure "choke points."
 - For runs up to **50 feet**: Use 1/4" tubing or 3/8" reinforced hose.
 - For runs up to **100 feet**: Use 3/8" tubing or 1/2" reinforced hose.
 - **Crucial:** Avoid restricted fittings or standard "quick-disconnect" couplings, as these drastically reduce the CFM (cubic feet per minute) required for the vortex effect.
- **Supreme Filtration Strategy:** Vortex technology requires clean, dry air.
 - **Particulate Filter:** 5 to 10micron rating to prevent debris from clogging the internal generator.
 - **Coalescing Filter:** 0.03 micron rating to eliminate oil aerosols.
 - **Auto-Drains:** Always use automatic drains on filters to prevent moisture slugs from entering the cooler.

II. Operating for Peak Performance

The Supreme Compact Spot Cooler is a precision instrument. Positioning is everything.

1. **Direct-Target Cooling:** Use the provided flexible "Stay-Put" tubing to aim the chilled air stream directly at the point of highest heat concentration (e.g., the cutting edge of a tool or the CPU of a controller).
 2. **Nozzle Selection:**
 - **Focused Cone Tip:** Best for high-velocity, pinpoint cooling of small areas.
 - **Wide Fan Tip:** Best for broader thermal dissipation across larger surfaces.
 3. **Proximity Matters:** For maximum heat transfer, position the discharge nozzle approximately **1/2 inch (12.7 mm)** from the target surface.
 4. **Thermal Efficiency:** Keep the cold-air delivery hose as short as possible. Longer runs allow the cold air to absorb ambient heat before it reaches your target, reducing the effective cooling delta.
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III. Troubleshooting & Optimization

If the unit is not reaching expected temperatures, check the following "Supreme Performance" variables:

- **High Inlet Temperature:** If your air lines run along a ceiling or near heat-producing machinery (like ovens), the air entering the cooler will be hot. The cooler provides a *drop* from the inlet temperature; if the input is 110°F, the output will be warmer than expected.
 - **Pressure Choking:** Weak cooling is almost always the result of undersized air lines or restrictive fittings. Ensure your pressure gauge reads at least 80 PSIG **while the unit is running**.
 - **Ice Blockage:** In high-humidity environments, moisture in the air line can freeze inside the cold-end muffler. If airflow drops off, shut the unit down to defrost and **install a desiccant dryer** upstream to solve the root cause.
 - **Backpressure:** Never restrict the cold air exhaust. Using smaller diameter tubing than what is provided will create backpressure, forcing the cold air back into the hot exhaust port and neutralizing the cooling effect.
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IV. Maintenance

Because the Supreme Compact Spot Cooler has **no moving parts**, it is virtually maintenance-free.

- **Cleaning:** If the unit becomes contaminated by dirty air, it can be easily disassembled, cleaned with a mild degreaser, dried, and reassembled.
- **Filter Checks:** Your only routine task is ensuring your upstream filters are clean and the auto-drains are functioning correctly.