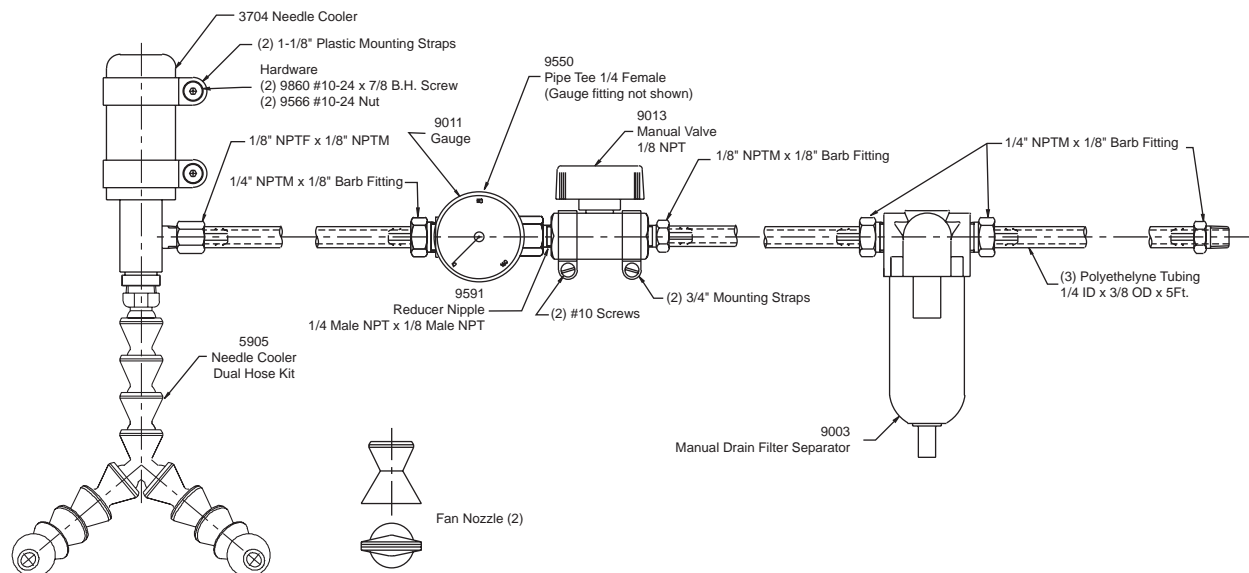


MODEL NC-1 NEEDLE COOLER SYSTEM

INSTALLATION & MAINTENANCE



COMPRESSED AIR LINE SIZES

Compressed air lines should be sized to hold pressure drops to a minimum. When installing supply lines, use 1/8" pipe up to 25' (7.6m) long, 1/4" pipe up to 100' (30.5m) long. If compressed air hose is used, consider 1/4" I.D. hose to be the same as 1/8" pipe, 3/8" I.D. hose to be the same as 1/4" pipe. Do not use restrictive fittings such as quick connects. They can "starve" the Needle Cooler by causing excessive line pressure drop.

COMPRESSED AIR SUPPLY

For best performance, use line pressure 80 to 100 PSIG (5.5 to 6.9 BAR). A Needle Cooler uses 4 SCFM (113 SLPM) at 100 PSIG (6.9 BAR) supply pressure.

With proper filtration and separation of dirt and moisture from the compressed air supply, the Needle Cooler will operate for years with no maintenance required. Included with the Needle Cooler System is the Model 9003 Manual Drain Filter. Replacement filter elements (#EKF300 for Model 9003 Manual Drain Filter) are available.

The filter should be close to the Needle Cooler, within 10 to 15' (3 to 4.6m) is best.

Failure to use or properly maintain the filter voids any warranty on the Needle Cooler.

USING THE NEEDLE COOLER

Find the best mounting location on the sewing machine. Mount the Needle Cooler, valve and filter so these components do not get in the way when the machine is tilted for service. (See diagram above for the correct mounting sequence.) Mark the hole position for each plastic mounting strap on the machine. Drill and tap for the 10-24 x 3/8" screws (included). Insert cooler into the plastic mounting straps. Secure straps to the sewing machine. Attach 1/8" NPTF x 1/8" NPTM fitting to the inlet of the Needle Cooler.

Next, connect the pipe tee, pressure gauge and manual valve as shown on the diagram. To do this, first insert a 1/4" NPT x 1/8" barbed fitting into an end of the tee. Then, insert the pressure gauge into the center of the tee. The manual valve can be attached to the tee by using the brass 1/4" NPTM x 1/8" NPTM reducer nipple. The 1/8" NPTM x 1/8" barbed fitting should be installed in the open end of the manual valve. Secure a 1/4" NPTM x 1/8" barbed fitting into each end of the manual drain filter. With compressed air off: attach components as shown by using the supplied 1/4" ID x 3/8" OD polyethylene tubing.

USING THE NEEDLE COOLER (con't)

There are many types of sewing operations that make it necessary to experiment with the Needle Cooler. It is particularly effective on high-speed operations and those using synthetic threads. The segmented flexible hose can be assembled to accommodate one needle or two. For single needle applications, snap the pieces together for one cold outlet. Choose the nozzle that is best suited to the application (cone or fan). Use the air splitter ("Y" connection) when two needles are used. The dual point can easily cool two needles positioned up to 4" (10cm) apart. Position the nozzle outlet as close as possible to the needle.

Turn the valve to the off position when the machine is not in use, for service, thread breaks and rethreading.

CONTROLLING THE COLD AIR

The Needle Cooler gives instant cold air when compressed air is supplied to it. If less cold air is needed, the volume of cold air can be reduced by regulating the compressed air supply with the manual valve (Model 9013 Manual Valve included). Lower pressures, as indicated on the gauge, give less cold flow and reduce compressed air consumption.

TROUBLESHOOTING & MAINTENANCE

If the Needle Cooler Does Not Perform Properly, check the four common problems listed below:

1. **Inlet Pressure** - Low inlet pressure supply will cause poor performance. Measure the pressure at the compressed air inlet of the Needle Cooler while it is operating. Restrictions in the compressed air supply line can cause excessive pressure drops and deteriorate performance.
2. **Inlet Temperature** - A Needle Cooler provides a temperature drop from supply air temperature. In some cases, the supply air is warmer than ambient air due to compressed air lines running across ceilings, near furnaces, direct sun, etc. In this case, the cold air may be warmer than anticipated and adequate refrigeration may not be available for the application.
3. **Back Pressure** - The performance of a Needle Cooler deteriorates with back pressure on the cold end exhaust. Use only the flexible segmented hose included with the Needle Cooler.
4. **No Cold Flow** - If the filter is not drained regularly, water may overflow into the Needle Cooler and cause internal freezing. This can reduce or even stop cold air flow. Drain the filter often, or crack open for a small continuous air bleed. If internal freezing occurs, any one of the following will correct the problem:
 - a) Blow air (use an air gun) into the cold end fitting with the Needle Cooler off.
 - b) Turn the Needle Cooler off for a few minutes. It will thaw.
 - c) Put a dryer on the compressed air supply.

The Needle Cooler has no moving parts. Maintenance is not normally required provided the air filter is used. However, if internal cleaning should be necessary, the following procedure is recommended:

1. Unscrew the flexible segmented hose. Use a 5/8" wrench to remove the cold end fitting, turning counterclockwise.
2. Remove the "O"-ring, generator (white plastic part), brass taper sleeve and plastic washer. Inspect for dirt and clean as necessary.
3. Immerse all parts in mild cleaning or degreasing solution. Use an air gun to remove solution and contaminants.
4. Re-install plastic washer, brass taper sleeve, generator, "O"-ring, cold end fitting and flexible segmented hose.