

TGA Transfer Line Adaptor Installation

An adaptor fitting must be installed on the TGA transfer line to make a leak-free connection to your TGA furnace. Several fittings are provided to allow connection to different furnace outlets. This sheet explains how to install the correct adaptor for your Thermo Scientific TGA/IR system. Follow the instructions in the section that applies to your model TGA.

CAUTION The fused-silica-lined transfer line can be shaped to fit your experimental configuration, but do not allow bends with radii less than 2". Sharp bends will permanently damage the transfer line.

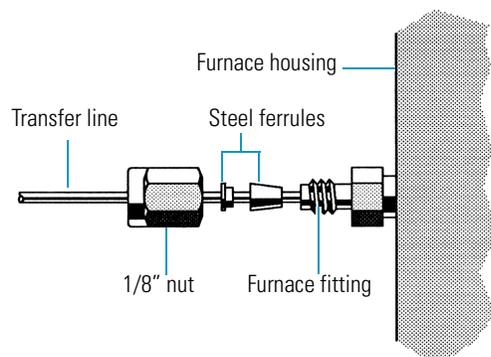
The TA Instruments Product Line is formally supported by the adaptors included in the adaptor kit. TGA furnaces made by other manufacturers may be interfaced by using these adaptors or others of similar style (Swagelok®).

WARNING If the TGA furnace or transfer line is hot from use, allow the system to cool for at least 2 hours before installing an adaptor.

TA Instruments Q50, Q500 and Q5000 Models

The Q-series TGA ovens from TA Instruments provide a 1/8" compression fitting adaptor, which fits directly to the Thermo Scientific TGA Accessory transfer line. The Q5000 provides a heated outlet (called the Q5000IR FTIR interface kit) to prevent condensation, which also has the required fitting. Ovens from other vendors with horizontal movement can be accommodated if the transfer line is permitted room to flex during the open/close operations; most include the correct furnace fitting.

Figure 1. Parts of the adaptor



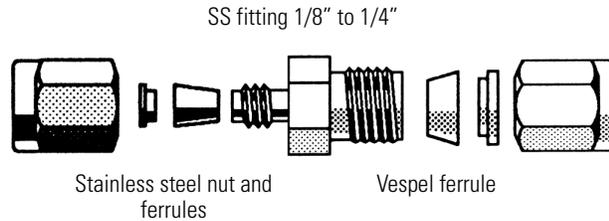
The tools required for the installation are a 7/16" and a 1/2" open-end wrench.

❖ Follow these steps

1. Work the heater and insulating cover back a few inches from the end of the transfer line.
2. Slide the 1/8" nut and steel ferrules onto the stainless steel transfer line as shown in the preceding illustration.
3. Check the end of the transfer line to make sure it is clean and straight; cut the end off if necessary.
4. Insert the transfer line into the 1/8" fitting on the oven. The line should press against the bottom of the fitting or slide through slightly – there is no need to push this deeply into the furnace (older models required this).
5. Gently tighten the 1/8" nut using both wrenches to prevent the furnace fitting from turning. As you tighten, the steel ferrule will bite into the transfer line, forming the seal.
6. Gently work the heater and insulating cover back over the nut and push some insulation out to cover the furnace fitting.

The ceramic furnace outlet of the Q600 and other similar quartz or ceramic furnaces requires special handling. The Q600 uses a 1/4" to 1/8" male-to-male fitting with the high temperature vespel ferrule. This will provide the required 1/8" furnace fitting for the transfer line. Because the ceramic port can be damaged, ensure the transfer line provides sufficient flexibility during the open/close operations to not stress the joint, and ensure the weight of the transfer line is not bearing down on the ceramic port.

Figure 2. Fitting and ferrule assembly



❖ **Follow these steps**

1. Remove the nut and ferrules from the 1/4" side of the fitting. Discard the SS ferrule.
2. Slide the 1/4" nut with the Vespel ferrule, orientated as shown, onto the ceramic exhaust port of the Q600.
3. Work the heater and insulating cover back a few inches from the end of the transfer line.
4. Loosen the 1/8" nut slightly but do not remove it from the adaptor. Slide the transfer line into the nut until it seats in the fitting. Tighten the nut finger tight. Using two 7/16" wrenches, tighten the nut 1/2 to 3/4 turn past finger tight. Do not overtighten.
5. Slide the fitting onto the ceramic exhaust line and tighten the 1/4" nut finger tight.
You can slightly tighten this connection beyond finger tight but be aware that the exhaust line is fragile.
6. Work the heater and insulating cover over the fitting as far up onto the furnace tube as possible.
Be sure there is sufficient flexing of the transfer line to prevent stress damage to the ceramic exhaust tube.

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