

TAPERED TUBE PLUG INSTALLATION INSTRUCTIONS

The following steps are required to assure the best seal possible for the **Elliott** one piece tapered tube plugs when plugging shell and tube heat exchanger vessels. These instructions are for brass, carbon steel, and stainless steel tube plugs. For other materials not listed, contact the factory at **800-332-0447**, fax **937-253-9189** or email **sales@elliott-tool.com** for additional information.

Step 1

If the tube OD and gage is not known the tube ID must be measured. To measure the ID of the tube to be plugged use an **Elliott 876200 series** tube gage or equal, measure the tube in the rolled area of the tube sheet. If the measurement is taken behind this rolled area, the false reading may result in the improper size plug being selected. In the event that the tube has been removed and the tube sheet is being plugged, measure the sheet hole ID making certain that the measurement is not taken in the grooved area of the tube sheet.

Step 2

Select the proper size tapered tube plug required using the chart in your Elliott Catalog or Product Selection CD, or consult the factory for sizing assistance. The proper sized tapered tube plug will touch the tube ID approximately in the middle of the taper section of the plug. If too little plug or too much of the plug protrudes, the plug may not be the correct size. Contact the factory if in question.

Step 3

Select the proper material required for the tube plug. It is typical for HVAC vessels to either match the plug material to the tube material or to the tube sheet material. In the petrochemical industry, these general guidelines may or may not apply. Always consult the heat exchanger manufacturer or the plant engineer where the vessel is used if in doubt.

Step 4

Before installing the plug, the tube end or tube sheet hole must be as clean as possible. Remove any oil, grease, or other lubricants that could affect the sealing surface of the plugs. Check for scratches that run from the inside of the tube sheet to the outside of the tube sheet. These scratches can result in a leak path after plugging. Brushing the plugging area with an **Elliott 5510 series turbo brush** will provide an ideal surface for tube plug installation.

Step 5

Determine if the tubes require puncturing before the plugs are installed. Many applications require the tubes be punctured to allow flammable liquids to drain out or to eliminate the possibility of pressure building up inside the plugged tube. Use the **Elliott 9060 series tube cutter** for this job. Manually rotate the cutter clockwise until the blade pierces the tube wall. Reverse rotation and the cutter blade retracts so the tool can be removed. Continual clockwise rotation will result in the tube being severed.



Step 6

Make sure the tapered tube plugs are clean and free from any lubricants or debris. Insert the tapered plug into the tube end or tube sheet hole to be plugged. Set the tube plug into the tube or sheet hole as far as it will go. To complete the plugging process, drive the plug into the tube not more than 1/16" to create the seal. Driving the plug too deep may damage the tube sheet hole ligaments, causing the adjacent tubes to start leaking. If the plugs are not sealing at this setting, contact the factory for additional information. If the tube ends are projecting from the tube sheet, use the **Elliott ETF series tube facer** to trim the tubes flush with the tube sheet. Tube projection will not allow the plug to seal under the tube sheet, resulting in possible plug failure.

TUBE PLUG REMOVAL INSTRUCTIONS

Below are a few methods that have proven to be effective for removing tube plugs after they are installed. As always, care should be taken to avoid damaging the tube sheet hole.

Twisting

Remove the tapered plug from the tube by twisting the plug to break the mechanical bond. Vise grips or a pipe wrench should be used. If the plugs do not have enough length sticking out to secure a grip, the plug must be drilled out.

Drilling

The entire tapered tube plug may be drilled out. A drill slightly smaller than the tube ID can be used to bore a hole thru the plug. Once the pressure is reduced, vise grips can be used to twist the plug free. Caution should be used to avoid the drill bit from damaging the tube sheet hole.

Heating

By heating the tube plug to approximately 1000 degrees Fahrenheit, and then quickly chilling it with cold water, the ring and pin will loosen up enough to be removed. Care should be taken so that the tube sheet is not directly subjected to this heat.

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