

Forked Pyrolytic Platforms

Installation and removal instructions

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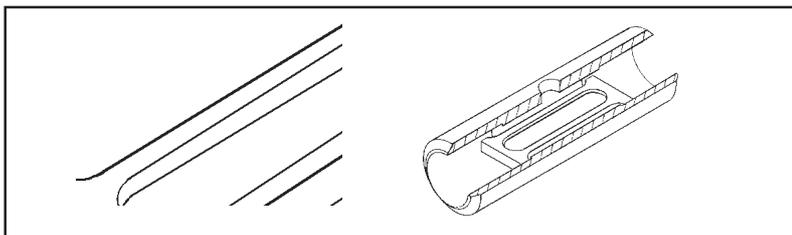
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1 Introduction

The forked platform is a new design for graphite furnace atomic absorption spectrometry. It combines the ease of use of the traditional pyrolytic coated partitioned tube with the unique capability to accept pyrolytic platforms.

The conventional platform is an 'I' shape, and fits inside a Plateau tube, straddling the plateau. The lobes at the end of the platform locate around the plateau aligning the tube longitudinally. Surface contact is minimized to that between the plateau tube and the underside edges of the four lobes on the ends of the platform. The minimal contact between the plateau tube and the platform ensure minimum thermal contact.

Heating of the platform is essentially by radiation from the tube wall. The effect of the radiation heating of the platform is to delay sample vaporization and atomization of the sample until the graphite tube has reached a steady-state temperature. Atomization of the sample into the high temperature environment assists in minimizing vapor-phase interferences.



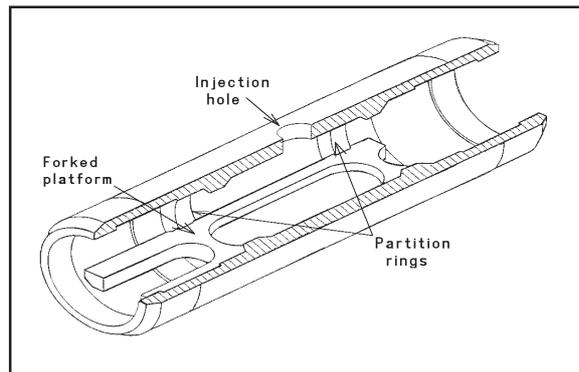
Conventional pyrolytic platform and plateau tube combination. Analyses restricted to platform atomization ONLY.

The new design tube and platform combination consists of a solid pyrolytic graphite platform which mounts semi-rigidly within a modified, pyrolytic coated partitioned graphite tube. Two small notches are machined in the partition rings. The platform fits into these notches ensuring positive location. The forks of the platform are slightly sprung. The whole pyrolytic platform is slightly elastic

such that when the platform is placed in the tube, it is held firmly in position. This provides improved stability of the platform during operation.

The platform may be mounted and demounted accurately by holding 'fork' extensions of the platform which reach to one end of the tube. The shoulders of the forks reproducibly position the platform against the partition rings.

With the forked platform removed, the partitioned tube may be used for normal analytical work. The partition rings remain inside the tube, to confine the liquid sample to the central part of the tube enabling even large volumes of organic solvents to be dried reproducibly. It is also suitable for high concentrations of acids (such as nitric) which would otherwise tend to spread along the tube surface.



The new design forked pyrolytic graphite platform mounts securely within a modified partitioned, pyrolytic coated graphite tube. The new design has the unique advantage that the one tube/platform combination can be used for both wall AND platform atomization

With the platform installed, surface contact between the platform and the tube is only via the notches in the partitions. This design ensures there is a minimum amount of heat transferred by conduction—most heating of the platform is by radiation from the tube wall, in the same manner as the old design platforms.

Although the relatively increased contact area of the new platform with the tube does produce slightly higher platform temperatures, all other operating characteristics of the forked platforms are equivalent to the conventional platform.

The new design offers many advantages to the operator. The shoulder-fork/notched partition arrangement allows easy and reproducible positioning of the platform within the graphite tube. The semi-rigid mount ensures correct positioning of the platform within the tube, and prevents platform rotation during the installation. Stability of the platform during operation is assured and contributes to improved baseline stability and precision. The new design offers ease of optical alignment in the furnace and allows easy alignment of the sample dispensing capillary relative to the platform. The unique advantage of this new design is that the one tube/platform combination can be used for both wall AND platform atomization.

If you require spares of any of these items, the part numbers are as follows:

Item	Part number
Forked Pyrolytic Platform (box of 10)	63 100024 00
Insertion tool	72 100214 00

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2 Installation of the forked platform



Note The notches in the graphite tube have limited mechanical stability. Repeated insertion and removal of the platform causes abrasion, so that ultimately, the platforms will not seat correctly.

The forked platform also has limited elasticity. This will be lost with repeated insertion and removal of the platform, and as the number of tube firings increases. Ultimately, the forked platform will fracture and a new platform should then be used as a replacement.

The forks on the platform are relatively fragile and require extra care when handled to avoid damage.

1. Position one of the forked platforms on the installation tool with the sample cavity facing downward onto the extended flat surface of the insertion tool. The forks of the platform should extend into the slot of the installation tool.



Hot Tip *This can best be done if the tool is held upside-down with the finger of the tool underneath and supporting the platform. Note that the depression within the platform should be facing downwards (if you can see the depression, then the platform will be installed incorrectly).*



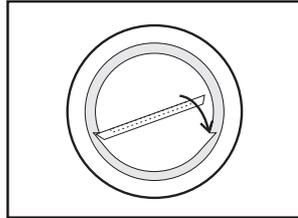
Note Take care to minimize contact with the platform, and the sample cavity. This will help to reduce the risk of contamination.

2. Hold the tube horizontally so that the notches in the partitions of the graphite tube are at the top, and the sample injection hole is at the bottom.
3. Carefully guide the installation tool with the platform on the finger of the tool into the tube. The tool is made of PVC so there is little danger of scratching the pyrolytic coating.



HotTip *Hold the tube horizontally at eye level, and look through it whilst inserting the tool and platform from the opposite end. This will allow you to position the platform relative to the notches in the tube.*

4. Using the PVC finger, locate one side of the forked platform into the notches cut into the internal partition rings in the tube. Make sure that the platform is located in both of the notches.
5. Rotate the tube and insertion tool so that the injection hole is at the top.
6. Press down on the platform using the PVC finger until the platform snaps into the notch on the opposite side of the tube. The platform is actually larger than the tube diameter in this position, so gentle force will be required to press the forked platform into position. The pyrolytic platform is slightly elastic and should not break unless it has been well used and has lost its elasticity.



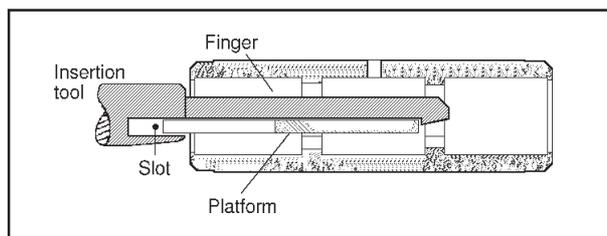
Placing the platform

7. Carefully lift the tool up to clear the platform and withdraw the Installation tool from the tube without changing the location of the forked platform.
8. Using the end of the tool, push the forked end platform gently until slight resistance is felt. The platform is now seated correctly.
9. Lightly shake the graphite tube to ensure that the graphite platform is securely seated within the tube. If the platform falls out of the tube, repeat steps 1 to 8.

The platform and tube can now be installed into the furnace workhead and aligned in the normal manner (refer to the section on installation of the Graphite Tube Atomizer (GTA) in your operation manual or your GTA manual). Any potential contamination should be removed by cleaning the tube before the first analytical measurements are made. (Refer to the 'Signal Graphics' section of your operation manual.)

3 Removal of the forked platform

1. Hold the graphite tube horizontally with the injection hole at the top. Hold the installation tool with the slot of the installation tool facing down.
2. Carefully insert the tool into the tube, starting from the end of the tube containing the forked end of the platform. Continue until the slot of the installation tool is under the forks of the platform. The tool is made of PVC so there is little danger of scratching the pyrolytic coating.
3. Gently apply downwards pressure on the finger and carefully withdraw the installation tool. The raised lip at the end of the finger will draw the forked platform out of the notches.



Removing the platform

4. Take care to minimize contact with the platform and the inside of the sample cavity. Place the forked platform into one of the containers and seal. This will help to reduce the risk of contamination.
5. The platform may now be safely stored until its next use.

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