# Setup Instructions
# GX-274 Liquid Handler and GX-274 ASPEC™ GX-27X Series Z-Arm
## (Part Number 260465)

This document contains instructions for setting up and installing the Z-arm on the GX-274 instruments. For complete setup instructions, refer to the user's guide included on the documentation CD that is shipped with the instrument.

**Warning!** All of the components on the Z-arm must be installed before the Z-arm is attached to the instrument. Do not install the Z-arm until instructed to do so in this document.

The Z-arm and its components should be assembled and installed in the following order:

1 Isolator Probe Holder Installation
2 Guide Foot Installation
   a) Guide Foot Assembly
   b) Guide Foot Installation
3 Z-Arm Installation
4 Adjusting the Z Travel Height
5 Probe Installation
6 LLD (Liquid Level Detection) Cable Installation
7 Final Z-Arm Height Adjustment

## Technical Specifications

| *Technical Specification* | *Definition* |
|---|---|
| **Arm speed** | 125 mm/sec in Z dimension (factory-set at 80 mm/sec) |
| **Vertical punch strength** | 1.4 kg (3.0 lb) per probe |

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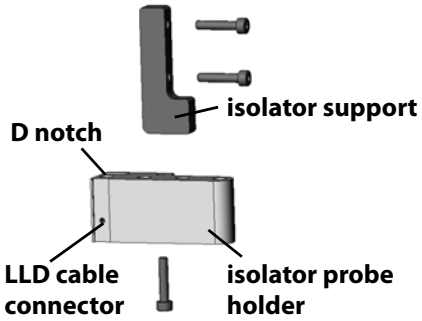
# Isolator Probe Holder Installation

The isolator probe holder (part number 2604645) includes the isolator support and three mounting screws. Follow the instructions below to install it on the isolator mounting block on the Z-arm of the instrument.

**Note:** The isolator mounting block is factory-installed. Do not remove it from the Z-arm.




1 Using the 3 mm Allen wrench included in the GX-27X accessory package, remove the screw from the bottom of the isolator mounting block on the Z-arm.

2 Slide the isolator mounting block down as far as it will go to the bottom of the Z-arm.

**Note:** There may be some resistance when sliding the isolator mounting block.

3 Lay the Z-arm on its back on a flat surface.

4 Orient the isolator probe holder so that the D notch is at the top and the connector for the LLD cable is facing out. Place the D notch in the isolator probe holder over the lower part of the isolator mounting block.

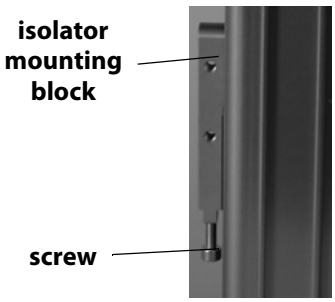
5 Place the screw removed in step 1 up through the bottom of the isolator probe holder and into the isolator mounting block. Tighten slightly using the 3 mm Allen wrench.

6 Position the isolator support next to the isolator mounting block on the Z-arm.

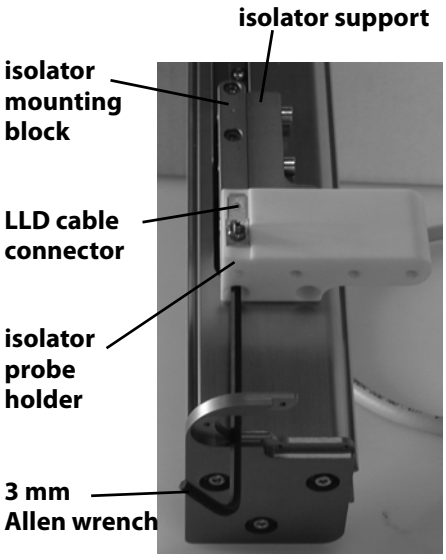
7 Place one of the supplied screws up through the isolator probe holder and into the isolator support. Tighten slightly using the 3 mm Allen wrench.

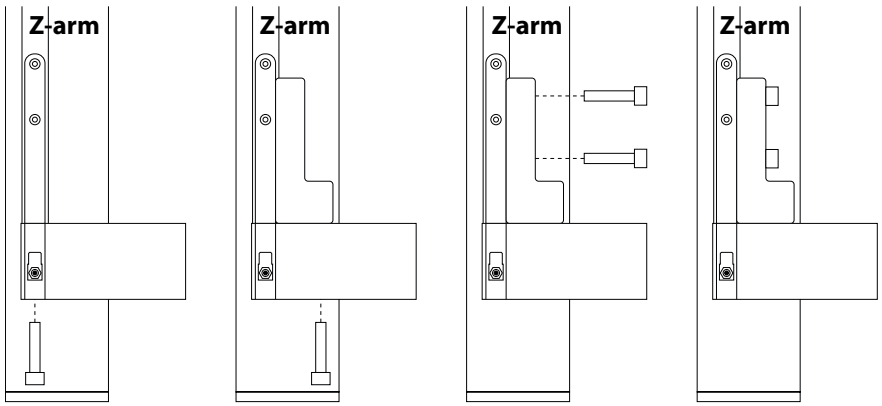
8 Place one screw into each hole on the right side of the isolator support. Tighten slightly using the 3 mm Allen wrench.

9 Using the 3 mm Allen wrench, first tighten the two screws on the bottom of the isolator probe holder, and then tighten the two screws on the side of the isolator support.




**right side of Z-arm (close-up view)**




**step 5** **steps 6 and 7** **step 8** **installed**

# Guide Foot Installation

The guide foot and probe guide inserts are ordered separately.

There are different size probe guide inserts available depending on the outer diameter of the probe being used. Each insert is marked with a number of spots. Refer to the table on the right for more information.

The guide foot includes the guide retainer lock, four probe guide inserts, and five screws.

| *Insert* | *Number of Spots* |
|---|---|
| 1.3 mm | 0 |
| 1.5 mm | 1 |
| 1.8 mm | 2 |
| 2.3 mm | 3 |
| 2.7 mm | 4 |

## Guide Foot Assembly

To assemble the guide foot:

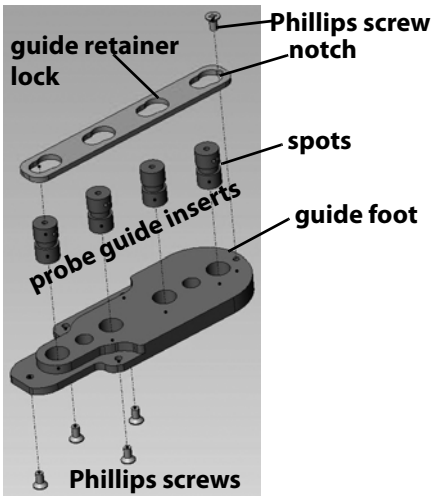
1 Place the guide foot on a flat surface.

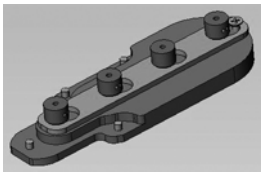
2 Locate the probe guide inserts (included with the guide foot) and place them in the holes on the guide foot. The probe guide inserts should be oriented so the larger hole is at the bottom and the spots are on the top half of the inserts.

3 Place the guide retainer lock over the probe guides. Orient the retainer lock so the larger diameter part of the holes is on the right side and then place the larger diameter part of the holes over the inserts.

4 Slide the retainer to the right to lock the inserts in place.

5 Place one of the Phillips screws in the notch on the right side of the retainer lock and tighten using a Phillips screwdriver.



**guide foot assembled**

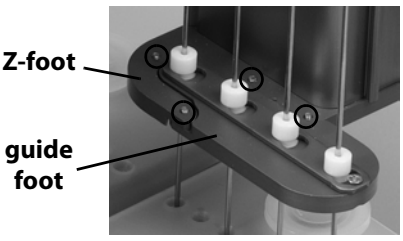
## Guide Foot Installation

The guide foot is installed on the Z-foot of the Z-arm.

1 Lay the Z-arm on its back on a flat surface.

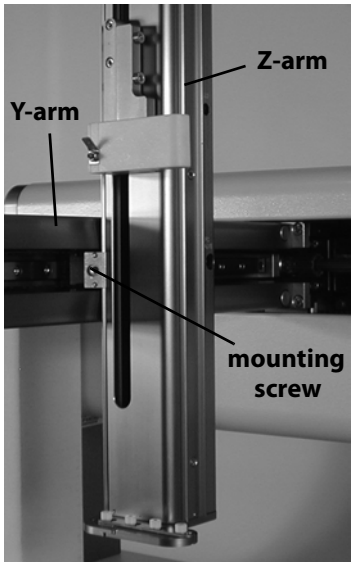
2 Place the guide foot below the Z-foot and align the holes on the guide foot with the holes on the Z-foot.

3 Place the four Phillips screws through the bottom of the guide foot into the Z-foot and tighten.




**guide foot installed on Z-foot**

## Z-Arm Installation




Follow these steps to install the Z-arm:

1 Using the 3 mm Allen wrench included in the accessory package, loosen the mounting screw on the Z-arm mounting bracket located on the Y-arm. Turn counterclockwise to loosen.

2 Partially pull out the bracket. Do not remove completely.

3 Place the Z-arm into the mounting bracket. You will need to insert one side of the Z-arm into place at a time (back to front).

4 Tighten the screw on the mounting bracket until the Z-arm is secure.

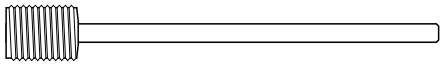
5 The Z-arm will be set to its proper height as the final step of the installation. This adjustment is described on page 5.

## Adjusting the Z Travel Height

The Z travel height is set by default to the S2 position (for 125 mm probes).

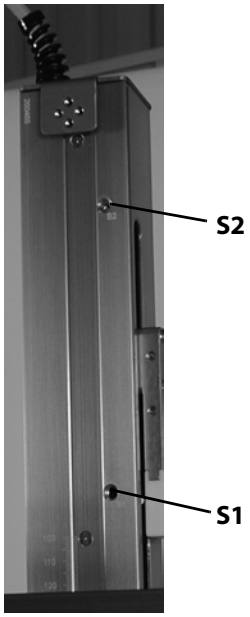
Follow these steps to adjust the Z travel height.

1 Using the 3 mm Allen wrench included in the accessory package, remove the stop pin (part number 260463) from the Z-arm. The stop pin is installed on the left side of the Z-arm in the hole labeled S2.



**stop pin**

**Note:** If you will be setting the Z travel height to 175 mm, you will not use the stop pin. If the stop pin is not being used, it should be stored for future use.




**left side of Z-arm**

2 Insert the stop pin in the proper hole on the left side of the Z-arm.

- S1 for 56 mm probes
- S2 for 125 mm probes
- No pin installed for 175 mm probes

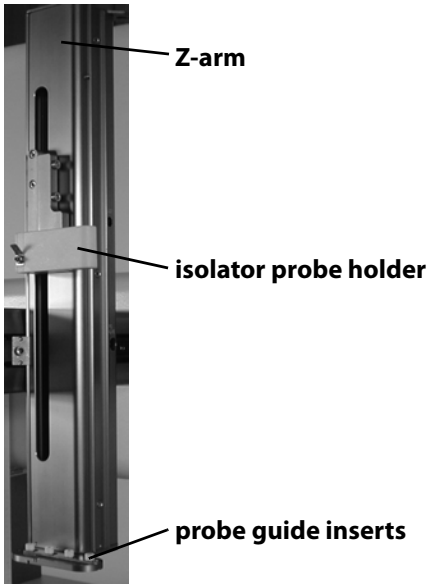
3 Using the 3 mm Allen wrench, tighten the head of the stop pin until it reaches a hard stop.

**Note:** The stop pin is inserted in a hole on the left side of the Z-arm and as it is tightened should enter the adjacent hole on the right side of the Z-arm. The tip of the stop pin is visible on the right side of the Z-arm.

## Probe Installation

There are different probes available for use on the instrument. Depending upon your application, you have purchased the appropriate probes and guide foot. When installing the probes, refer to the following procedure and diagram that show where they are installed on the Z-arm.

To install the probes on the Z-arm, insert each probe into the top of the isolator probe holder and pull it through until the tip of the probe is in the probe guide insert.




## LLD (Liquid Level Detection) Cable Installation

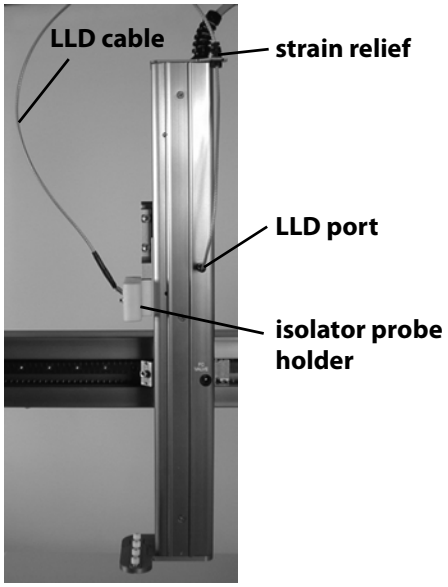
To install the liquid level detection cable assembly (part number 260461126):

1 Tighten the hex nut on the front of the isolator probe holder.

2 Place the metal slot end of the cable over the metal tab on the isolator probe holder.

3 Place the strain relief in the bracket at the top of the Z-arm.

4 Plug the other end of the cable into the LLD port on the right side of the Z-arm.




Before proceeding with the final Z-arm height adjustment, complete all of the installation steps for the instrument, including locator pan installation, accessory installation, rear panel connections, and plumbing connections. These instructions can be found in ***Chapter 2, Installation***, in the user's guide included on the documentation CD that is shipped with the instrument.

## Final Z-Arm Height Adjustment

Follow these steps to adjust the Z-arm to the proper height.

1 Locate one of the Z-height adjustment tools that was shipped with the instrument.

2 Using the 3 mm Allen wrench included in the accessory package, loosen the mounting screw on the Z-arm mounting bracket and slightly raise the Z-arm.

3 Place the Z-height adjustment tool under the Z-foot of the Z-arm.

4 While holding the adjustment tool in place, use the other hand to carefully lower the Z-arm until it lightly rests on the adjustment tool.

5 Tighten the mounting screw on the Z-arm mounting bracket so the Z-arm is secure.

6 While holding the adjustment tool in place, slide the Z-arm off the tool. Ensure that the bottom of the Z-arm lightly rubs against the adjustment tool as it moves. Repeat steps 2 through 5 until this is true.