

## Test Fixture Testing

Z-AXIS elastomeric elements have been in use for many years as a connection method, especially suited for anti-vibration and use in harsh environments, and have proven their reliability in many applications.

In testing done to check the reliability of each of up to 55 trace connections in a typical FTF, no element has failed to exceed 10,000 connections.

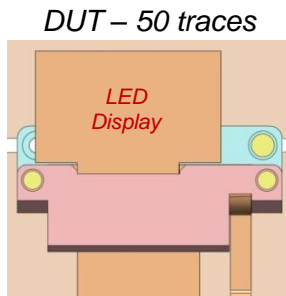
## Configurable to Any Application

While a FTF may be configured for trace up or down, there may also be variation in the number of traces. Z-AXIS utilizes laser-accuracy by making parts directly from computer solid model files. This results in low-cost, high-accuracy parts which can be custom designed and produced in mere hours.

## Custom Applications:

### *Trace mis-match and special landing*

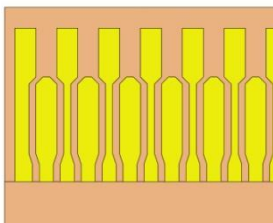
At right, a custom unit, where a 60 trace flex goes to test, and the DUT has 50 traces. The flex from the DUT only extends 5mm from the display, so a special landing was designed.



Test – 60 traces

### *Tight Pitch, Double Row*

Z-AXIS connectors, made from fine wire filaments, can handle extremely small pitch (.3mm) and double row configurations, as shown at right.



## About Z-AXIS Connector Company

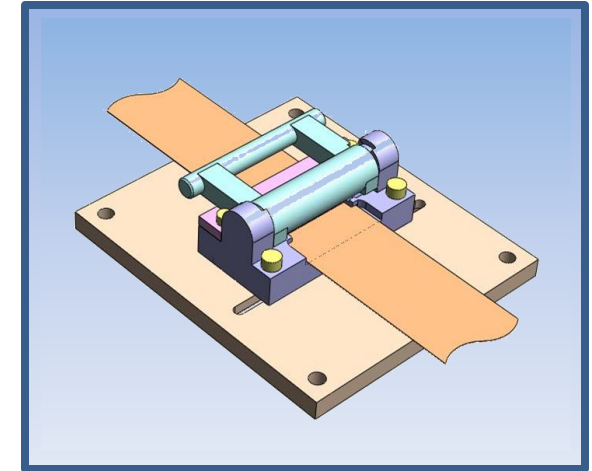
Established in 1995, we are a privately held corporation staffed with accomplished engineers and scientists, dedicated sales and customer service personnel, and experienced production operators and managers.

We provide innovative, stable, and internationally cost competitive custom connectors by designing and building our own special production equipment.

From high volume consumer applications to the smallest of concept custom connectors, we encourage and appreciate your inquiries about our products and capabilities.



## Flex Circuit Test Fixture



Z-AXIS Universal Test fixtures utilize the proven technology of the Z-AXIS Elastomeric Connector to create an inexpensive and reliable method of connecting the flex circuit from a DUT (device under test) to the test equipment.



### Z-Axis Europe

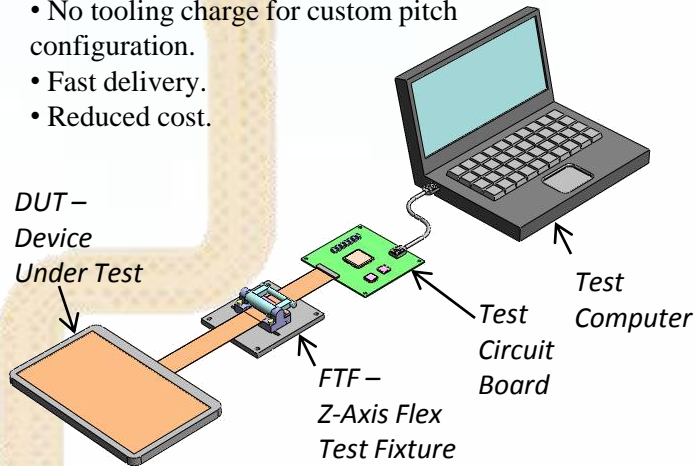
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## Z-AXIS Flex Test Fixture - FTF

For years the Z-Axis Elastomeric Connector has been providing unique connection solutions for the electronics industry. Now this technology is available in a convenient fixture for connecting flex cables, devices and test equipment.

Advantages of the Z-Axis FTF:

- Easy to use.
- Quick connect and disconnect.
- Doesn't damage the DUT flex cable.
- Exceeds 10,000 cycles before elastomeric connector needs to be replaced.
- One easy operation replaces all connections at the same time.
- Alternative connection method to spring loaded pins, or stamped metal contact connector.
- No tooling charge for custom pitch configuration.
- Fast delivery.
- Reduced cost.



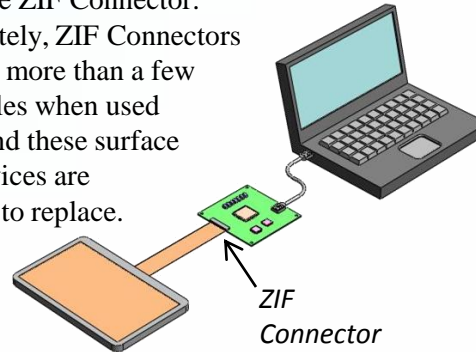
### The Z-AXIS Test Connection Solution

Here we see the entire system for a typical application - testing an LCD display. For testing the DUTs flex cable needs to plug into a circuit board which converts the signal to USB. The USB cable then connects to a computer running the test program. The weak spot in the system is where the DUT Flex connects to the circuit board. The ZIF style connector used can fail after a few dozen cycles. The solution is to add a Z-Axis FTF between the DUT and circuit board, as shown.

## Electronics Testing - The Traditional Way

Below we see a typical testing system, utilizing the most convenient method of connection – attaching the DUT directly to the USB board through the ZIF Connector.

Unfortunately, ZIF Connectors do not last more than a few dozen cycles when used like this and these surface mount devices are expensive to replace.



Another approach is to use spring or “pogo” pins. However this approach requires a large investment in the pin holding fixture and circuit board.

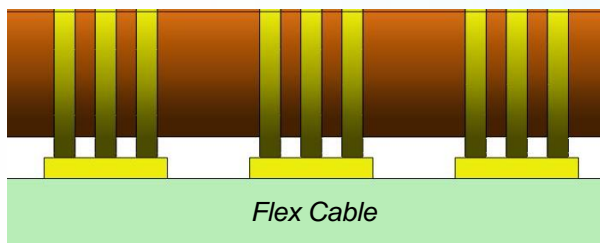
In Summary:

Connection Method	Cost	Ease of Use	Reliability
Z-AXIS FTF	Low	Easy	High
ZIF Connector	Low	Difficult	Very Low
Spring Pins	High	Medium	High

### Why the Z-Axis Connector Works So Well

The Z-AXIS FTF utilizes an elastomeric element which deflects as the element is pressed onto the traces of the flex. Shown in the drawing below, multiple wires make connection with the pads of the flex cable. Redundancy equals reliability.

Z-AXIS Connection Element



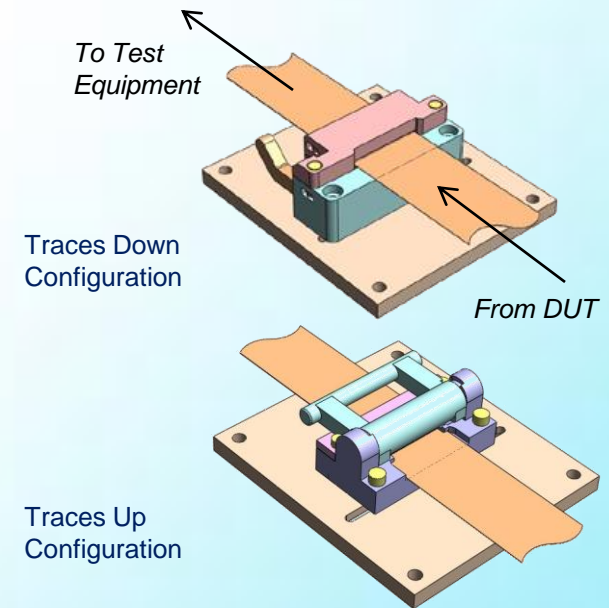
## Operation

First the FTF must be connected to the test equipment by simply plugging a flex from the FTF into the test board connector. A lever on the FTF is moved to the open position, and the flex from the DUT is inserted (with zero-insertion force) into the FTF slot. Then the lever is moved to the alternate position, causing a gradually increasing clamping force to be exerted on the flex traces and connection element, resulting in a reliable uniform connection. Once test is completed, the FTF lever is returned to its original position and the flex is easily removed.

### Two Types of CTF

There are two basic styles of FTF - traces down and traces up.

Different applications may require that the traces of the device under test be presented either face up or face down. Z-Axis has designs for either condition as shown below.



### Automation

If higher throughput is required, a custom FTF can be activated by a footswitch, or control system.