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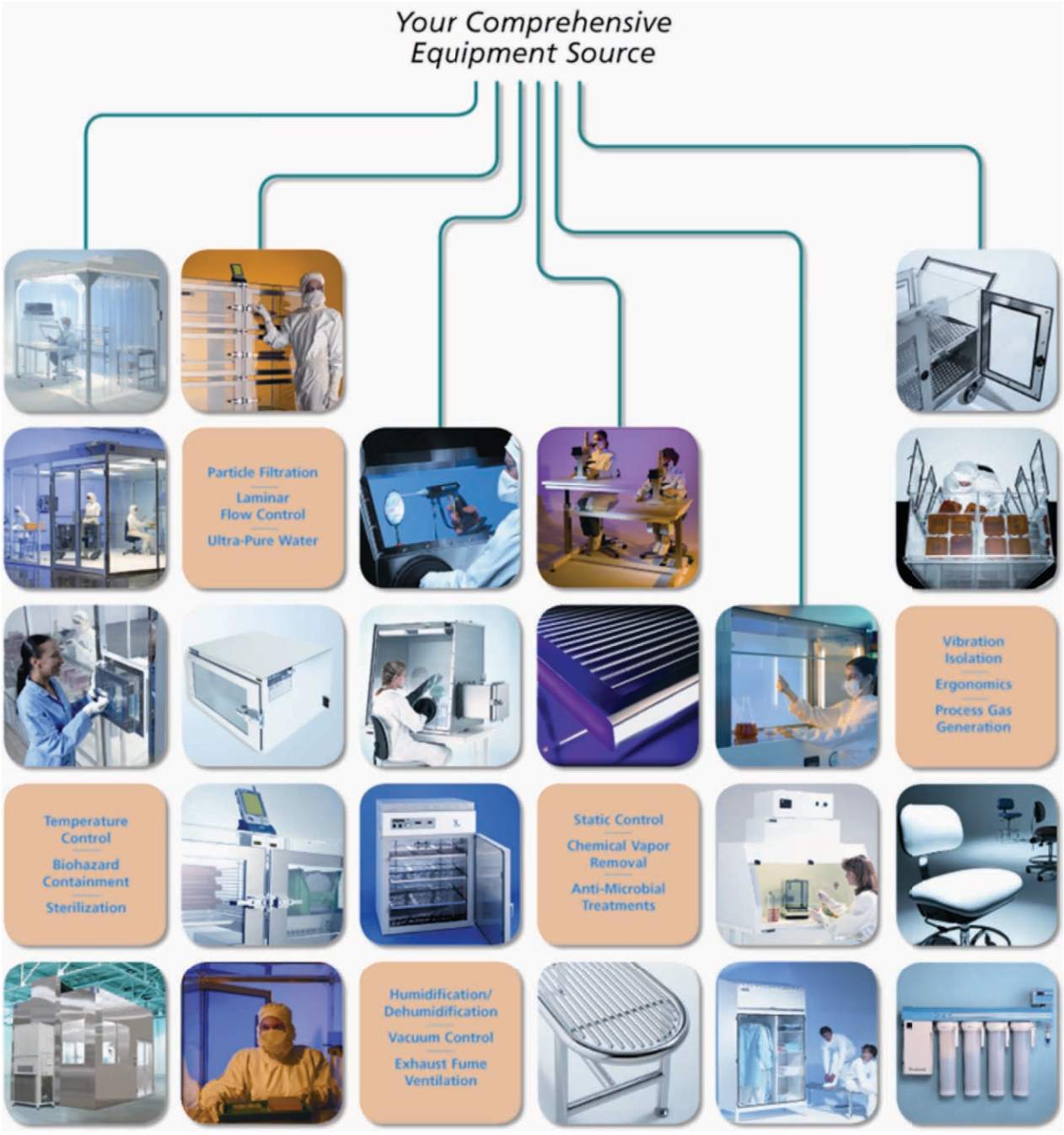
TERRA UNIVERSAL.COM
Critical Environment Solutions



Quick-Start Operating Guide *Document No. 1800-61*

Wire Bond Strength Tester

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Quick-Start Operating Guide

Wire Bond Strength Tester

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Safety Notice

A thorough familiarity with all operating guidelines is essential to safe operation of the product. Failure to observe safety precautions could result in poor performance, damage to the system or other property, or serious bodily injury or death.

The following symbols are intended to call your attention to two levels of hazard involved in operation:

CAUTION — **Cautions are used when failure to observe instructions could result in significant damage to equipment.**

WARNING — **Warnings are used when failure to observe instructions or precautions could result in injury or death.**

The information presented here is subject to change without notice.

1.0 Introduction

This manual provides information on installing and operating your Terra Universal Wire Bond Strength Tester.

By studying this document carefully, you can be assured of a long, efficient service life from the unit.



Wire Bond Strength Tester



Photo shows the chuck all the way up and all the way down.



Wire-Bond Strength Tester Inspection Station with Microscope

2.0 Description

The Wire-Bond Strength Tester is a compact, portable bench-top unit that is designed to perform accurate and reliable tests of wire-bond strength measurement in either destructive or non-destructive mode, in accordance with MIL-STD-45662.

The tester features a minimum of moving parts, all of which are built to last a lifetime. Side forces on the wire are eliminated through the precise alignment of the pivot axis of the gauge arm to the swing bracket and through a free-swinging hook at the gauge tip. A recoil guard prevents undue snap-back of the instrument's gauge arm and indicator needle, thereby protecting the accuracy of the needles. A dash pot, included with all testers), enables you to adjust the pull rate and delivers smooth motion through the entire pull cycle, thereby guaranteeing the independence of test results from operator variables. These features assure the repetitive read-out accuracy that is essential in wire-bond testing and provide QA and production personnel with meaningful data.

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The unit is supplied with your choice of one gauge in one of the following ranges: 4-35 g, 5-50 g, 10-100 g, 15-150 g. All gauges can be easily and quickly interchanged on the tester, and hooks are available for any wire or gauge size.

3.0 Installation

Calibration weights are provided for every pull range so that you can perform checks of the tester's accuracy. For measurement accuracy purposes, it is best if the tester is checked for compliance with the appropriate calibration weight at the beginning of a shift or before a test. The calibration weights supplied have been manufactured and inspected using a laboratory scale which has been calibrated by a certified calibration laboratory. The scale's true reading is verified by calibrated weights in compliance with MIL-STD-45662. These weights are manufactured to a tolerance of 0.1 gram.

To calibrate the unit:

1. Select a weight that matches the mid-scale of the dynamometer or the expected wire pull strength as close as possible.

2. Suspend the selected weight from the pull hook by inserting the pull hook carefully into the small hole in the tab of the test weight.

3. Turn the actuator knob until the tester arm assumes a horizontal position. The test arm MUST be horizontal!

4. Compare the value indicated by the needle and verify that it is the same as the stamped number of the weight.

4.0 Operation

Simply place a test sample on the accessory chuck. Using a microscope to assist you, adjust the actuator knob and insert the pull hook under the wire to be tested. For good test results, make sure that the actuator knob is turned one-half revolution clockwise against its stop. The pulling speed will be maintained at a constant repeatable rate by the dash pot. Adjust the pulling speed using the adjusting screw of the dash pot at the bottom of the tester. Clockwise adjustment is for a slower pulling speed and counter-clockwise is for a faster pulling speed. Erratic test data can result from too fast a pulling speed.

To do non-destructive testing, the travel of the tester can be restricted by the stop screw below the tester bracket. You can test wire bonds below their expected strength in this manner. For example, while using a 15-gram dynamometer to test for a 5-gram maximum pull, adjust the stop screw until it touches the tester bracket at the desired pull force (5 grams) while maintaining a 5-gram pull by limited turning of the actuator knob.

It is important during actual testing to turn the actuator knob clockwise fast enough and far enough to let the dash pot determine the true testing speed.

5.0 Maintenance

The free-swinging pull hook is installed in the small hole in the tip of the pull gauge arm and will need to be replaced when broken. To replace a broken pull hook:

1. First remove the pull gauge from the tester.

2. Securely clamp the gauge arm in a small vice while the body of the gauge is suitably supported to prevent damage to the internal gauge arm bearings.

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3. With a fine wire cutter, snip off the protruding end of the pull hook and remove the rest from the hole in the pull gauge arm.

4. Using tweezers, carefully remove the proper spare hook from its package.

5. Insert the selected hook with the thick pre-bent end from the front into the hole in the pull gauge arm all the way to the bend

6. Using a pair of fine needle nose pliers, bend the protruding end upward about 90 degrees and cut off the excess shank close to the pull gauge arm.

7. Test the free swinging of the hook. If lifted, it should return to a vertical position from its own weight.

To transport the Wire-Bond Strength Tester:

Verify that the actuator knob is in the extreme counter-clockwise position (the lock position). This prevents damage to the test dynamometer and the dampening device (dash pot).

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6.0 Warranty

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Generally, customers can improve the chance of collecting on a freight claim by following these procedures: 1) formally requesting that the carrier inspect the shipment immediately upon suspecting damage or shortage to verify condition; 2) notifying the carrier upon discovery of concealed damage and requesting an inspection within 15 days of receipt, both in person or phone and following up via mail; 3) keeping the shipment as intact as possible, including retaining original packaging materials and keeping the product as close to the original receiving location as possible; 4) holding salvage for disposition by the carrier.

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Warranty Returns: All warranty returns must be authorized in advance by Terra Universal and approved under an RMA. Unless approved in advance for good reason, all returns must be in original condition, including all manuals, and must be packaged in original packaging materials. All returned goods are to be shipped to Terra Universal, freight prepaid at customer's expense. See Terra's "Policy and Procedure for Returned Goods."

Thank you for ordering from
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Appendix

System Configurations and Replacement Parts
The Portable Wire-Bond Strength Tester can be purchased as a basic unit with your choice of any one of the four gauges or in a number of configurations ranging up to a complete inspection station with all four gauges, calibration weights, accessory chuck, and microscope.

Order replacement parts, accessories or tester systems, or inspection stations from the information below

Portable Wire-Bond Strength Tester and Gauge Only:
Includes the tester and your choice of any one of the four gauges (with hook).

				Cat. #
With	4-35	gram	gauge	9104-00A
With	5-50	gram	gauge	9105-00A
With	10-100	gram	gauge	9101-38A
With	15-150	gram	gauge	9101-39A

Portable Wire-Bond Strength Tester, Complete Package.
Includes the tester, all four gauges shown above (with one pull hook for each), all seven calibration weights (15 g, 25 g, 50 g and 75 g), and an accessory chuck.

Catalog No. 9101-00

Wire-Bond Strength Tester Inspection Station
Includes the complete package above in addition to a microscope, base/stand and 10X or 20X eyepieces.

Catalog No.	9101-17	with 10X eyepieces)
Catalog No.	9101-26	(with 20X eyepieces)

Wire-Bond Strength Tester Inspection Station, with one gauge only.
Includes the tester with Microscope and 10X or 20X eyepieces, base/stand, and one gauge of your choice (with pull hook).

				With 10X eyepieces	With 20X eyepieces
				Cat.#	Cat.#
With	10-100	gram	gauge	9101-43A	9101-47A
With	15-150	gram	gauge	9101-44A	9101-48A

Accessory Chuck
This magnetic chuck (2"H x 13/4"D, 6.4 oz) holds the sample in place during testing. Chuck height adjusts to fit many types of packages.

Catalog No. 9101-60

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Calibration Weights

All weights verified in accordance with MIL-STD-45662. Select a weight that matches the mid-scale of the dynamometer in use. For example, if your application uses the 4-35 gram tester gauge, you should calibrate your tester with the 15 gram weight.

	Cat.#
15 grams	9101-07
25 grams	9101-08
50 grams	9101-15
75 grams	9101-53

Tester Gauges with Hooks

Each Tester Gauge comes with one hook. The accessory chuck and calibration weights must be ordered separately.

	Cat.#
4-35 grams	9101-03A
5-50 grams	9101-04A
10-100 grams	9101-34A
15-150 grams	9101-35A

Spare Pull Hooks

4-35 grams	9101-12A
5-50 grams	9101-13A
10-100 grams	9101-50A
15-150 grams	9101-51A

Replacement Dash Pot

The Dash Pot delivers smooth motions throughout the entire pull cycle and allows adjustment of the pull rate.

	Cat.#
	9101-14

Spare Eyepieces	10X	9101-24
	20X	9101-25

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