TENSILE TESTER

MODEL TT2

"Test spot welds quickly and economically."

The Model TT2 is intended for testing of specimens that will require from 300 to 5000 pounds of tensile load to cause fracture. Most spot-welded specimens are in this range. Arc-welded sheet metal specimens can also fall into this range. The Model TT2 is also ideal for teaching the concept of tensile testing. It is portable and moderately priced.

The Model TT2 consists of a load frame, a pumping system, and an optional electronic load measuring system. The specimen to be tested is held in the load frame by self-tightening grips. As the load is increased, the grips tighten on the specimen with increasing force. The grips will accept up to 0.125 x 1.13 inch cross section, but the 5000 lb. maximum load limits the largest specimen that can be tested (varies according to material strength).

The basic pumping system consists of a hand-operated pump. For most applications, this is the best option. The operator has precise control over the entire operation.

Pump Options

Two pump options are available.

o **Air-operated**. The **-AO** option uses an air pump and allows for faster operation, such as when many samples need to be tested. The customer must provide 9 cfm of filtered and lubricated air at from 60-120 psi.

TT2 Basic Configuration

o **Electric-operated**. The **-E** option uses an electric pump that allows for fast operation where air is not available. The pump operates at 120 Vac.

Gauge Options

The basic unit has no gauge. When doing peel tests only, a gauge is not required.

o **Digital Gauge**. The **-DG** option gives the ability to deterrmine the load required to break a specimen. The gauge shows the live load during a test. After the specimen breaks, the breaking load can be recalled by the push of a button. Calibration consists of setting the maximum (5000 lb) and minimum (0 lb) loads. Intermediate loads cannot be set. They are characteristic of the gauge, which has an accuracy better than +/- 3%.

o **Digital Readout.** The **-D** option, gives the most accurate means for determining the breaking load. The electronic measuring system is comprised of a microprocessor-controlled readout and a precision pressure transducer. The system is programmed at our factory, during calibration, to give a linear load reading from 300 to 5000 pounds. The accuracy of the system is better than +/- 1%. Digital readout of live and peak loads as well as auto zero are standard functions.

SPECIFICATIONS OF THE DIGITAL READOUT (-D) VERSION

- Meets ASME, AWS Codes; MIL Standards
- Calibration in accordance with ASTM E4 with standards traceable to NIST
- 5000 lb. Maximum load; +/- 1% Accuracy
- 300 lb. Minimum load; +/-1% Accuracy
- Grips specimens up to 0.125 x 1.13 inch section (see text)
- Grips specimens from 7 to 11 inches long
- Digital readout of live and peak loads
- Auto zero of digital readout

Specifications subject to change without notice.

Fischer Engineering Company

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Specimen Size and Type

The specimen size and type depends upon two factors: the code or standard that applies to the welding being done and the thickness of the materials being welded. The table below gives paragraph references from several popular codes and standards.

These references give the required widths and lengths of specimens for given thickness ranges. Often, these dimensions are given as minimum values. When selecting the dimensions you will use, you must also stay within the limits of the tester, regarding maximum thickness and width, and minimum and maximum length.

The references in the table are for spot-welded specimens. The tester can also be used for other types of welded specimens, so long as they conform to the size and load limitations.

Close-up of the lower gripper assembly

Self-Actuating Grippers

The upper and lower gripper rollers are spring loaded and can rotate in one direction only. A specimen can be easily inserted into the gripper rollers. However, like a Chinese finger puzzle, the rollers will resist pulling of the specimen back out. This is how the testing force is transmitted to the specimen.

If the specimen needs to be adjusted or removed, there is a release bar on either side of the gripper assembly. Pushing down on either bar will release the gripping force. After the completion of a test, the broken specimen ends are removed by pushing on the release bars.

TT2-D Digital Configuration

WHERE TO LOOK IT UP

Code or Standard	Size	Description of Test
ASME Section IX-98	Fig. QW-462.9	Parag. QW-196.2.1
AWS C1.4M/C1.4:1999	Fig. 3	Parag. 8.2.5
MIL-W-6858D	Fig. 1	Parag. 3.2

Digital Recalibration

During subsequent calibrations, the system can be adjusted using an IBM-compatible computer and software we can provide. However, a load-measuring device, such as a load cell, will also be needed to serve as the standard. This device must be calibrated in accordance with ASTM E74. Adapters will also be needed to mount the load cell in the TT2-D.

Most companies prefer to subcontract the calibration function. Fischer Engineering Company offers recalibration services on an as-needed basis. The Model TT2-D can be shipped to Fischer where the recalibration usually can be completed in 2-3 days. For more information or pricing, please call us.

HOW TO ORDER

Part No.	Description
TT2	Basic Tensile Tester. Includes hand-operated pump. 31"H x 7"W x 4"D (Tester) 6"H x 4"W x 14"D (Pump), 34 lbs. total
TT2-AO	Same as TT2 except for air-driven pump. 5.7"H x 5.6"W x 14.7"D (Pump), 40 lbs. total
TT2-E	Same as TT2 except for electric-driven 14"H x 9.6"W x 9.6"D (Pump), 55 lbs. total

Part No.	Description
-DG	-DG added to any of the above model part numbers adds the Digital Gauge Option. 6"H x 5"W x 5"D, 5 lbs. (Gauge)
-D	-D added to any of the above model part numbers adds the Digital Readout (Electronic) Option. 6"H x 5"W x 5"D (Sensor) 4"H x 6"W x 8"D (Gauge), 5 lbs. (Both)

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