

## TENSILE TESTER

# MODEL TT40

“Designed specifically for testing welds”

The Model TT40 is designed to perform tensile tests of welds in accordance with the ASME, AWS, API codes, and military standards. These documents require that tensile tests be conducted in order to qualify welding procedures, and in the case of API 1104, to qualify welders.

The Model TT40 includes a load frame, an hydraulic pumping system, and an electronic load measuring system. The specimen to be tested is held in the load frame by jaws that are self-tightening. As the load is increased, the jaws grip the specimen with increasing force. Jaws are available for gripping either flat or round specimens. Flat specimen jaws are supplied as standard equipment.

### Pumping System

The pumping system is driven by a 120 VAC electric pump. A pressure-compensating flow control valve allows for precise control of the rate of loading of the load frame. A separate directional valve controls the loading and unloading of the load frame.



Model TT40 (Pump not shown)

### Mounting

The Model TT40 is made for bench mounting. If we supply the bench, the model designation is TT40-B. When mounted at normal bench height, all components are easily accessible by the operator, who stands directly in front of the load frame. A swing-away shield is provided for safety. The separate pumping system and readout are mounted on the bench adjacent to the load frame. This configuration is accessible from all sides for maintenance purposes.

### Electronic Measuring System

The electronic measuring system is comprised of a microprocessor-controlled digital readout and a precision pressure transducer. This system is adjusted at our factory, during calibration, to give a linear response from 4,000 to 40,000 pounds. During subsequent calibrations the system can be adjusted using a load cell, a PC and software that we can provide.



Digital Readout

### SPECIFICATIONS

- Meets ASME, AWS codes; MIL Standards
- Calibration in accordance with ASTM E4 With Standards traceable to NIST
- 40,000 lb. Maximum load; +/- 1% Accuracy
- 4,000 lb. Minimum load; +/- 1% Accuracy
- Grips specimens up to 1.5 X 2.0 inch cross sections
- Grips specimens for 9 to 14 inches long
- Digital readout of live and peak loads
- Auto zero of digital readout

**Fischer  
Engineering  
Company,  
LLC**

## Specimen Size and Type

The specimen size 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 groove-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.



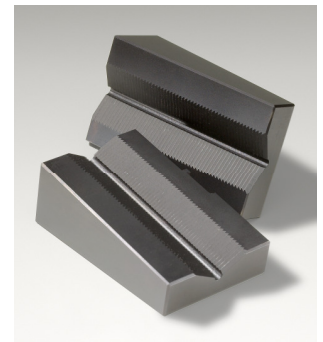
Close-up of the load frame

## Jaws

The upper and lower platens of the load frame contain the jaws. The jaws are spring-actuated with retainers that keep them aligned during positioning. Fillers are used to space the jaws closer for thin specimens. Two different types of jaws are interchangeable with these associated parts.



J1 jaws  
(for flat specimens up to 2" wide x 1 1/2" thick)



J2 jaws  
(for round specimens from 5/8" up to 2" diameter)

### WHERE TO LOOK IT UP

Code or Standard	Size	Description of Test
ASME Section IX-2017	Fig. QW-462.1	Parag. QW-150
AWS B2.1:2021	Fig. A.3A-D	Annex A3.
AWS B4.0:2016	Fig. 4.1-4.5	Parag. 4.
API 1104-2013	Fig. 4, 5	Parag. 5.6.2
MIL-STD-248D	See AWS B4.0	

### DIGITAL RECALIBRATION

The system calibration can be adjusted using a PC and software that 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 TT40.

Most companies prefer to subcontract the calibration function. Fischer Engineering Company, LLC offers recalibration services on site. Other companies that specialize in on site calibration can also be used. In any case, the technician must use the calibration procedure and software provided for the Model TT40. For more information or pricing, please call us.

### HOW TO ORDER

Part No.	Description	Part No.	Description
TT40	Tensile tester, pump, and calibrated digital readout. Includes (1) set of J1 flat specimen jaws. 120 VAC, 1 Ph., 60 Hz. 28"H x 22"W x 20"D (Tester) 21"H x 14"W x 20"D (Pump), 470 lbs. total	TT40-B	Tensile tester, pump, calibrated digital readout, and bench. Includes (1) set of J1 flat specimen jaws. 120 VAC, 1 Ph., 60 Hz. 72"H x 48"W x 30"D, 590 lbs. total
		J2	Jaws, for 5/8 to 2 inch dia. round specimens, set of (4). 10 lbs. total