

ASTM A48/A48M Standard Specification for Gray Iron Casting (Tensile Testing)

TEST METHOD SUMMARY

The standard specifies gray iron casting for general engineering applications, where tensile strength is a main concern. The tensile strength of the iron castings is determined by testing separately casted test bars. The tensile test shall be performed in compliance with ASTM E8/E8M. Uniaxial tensile force is applied to the specimens to investigate the tensile strength, and if required, other critical materials properties.

Solutions for ASTM A48/A48M typically include these types of components:

LOAD FRAME OPTIONS*

MTS offers electromechanical Criterion® and Exceed® universal test systems and dynamic servohydraulic Landmark® test systems that are ideal for performing accurate and repeatable monotonic tensile testing of metallic materials per ASTM A48/A48M.

MTS Criterion universal testing systems are engineered to support the needs of advanced Research & Development. MTS Exceed universal testing systems are best suited for Quality Control testing by delivering the reliable performance needed to meet the uptime demands of high-volume production environments.

The MTS Criterion and the MTS Exceed universal testing machines range from tabletop to floor-standing electromechanical models with force ratings of up to 600 kN / 135 kip. Many of the models have dual-zone test spaces to reduce set-up times if you frequently change test requirements.

The MTS Landmark dynamic servohydraulic test system with its superior stiffness and alignment capabilities, is an ideal choice if additional fatigue and fracture testing capabilities are required. Systems are available in highly configurable floor-standing and tabletop models with force ratings from 5 kN / 1 kip to 500 kN / 110 kip.

As an alternative to a new load frame, you can replace outdated controls / hydraulics of existing MTS or another manufacturer's electromechanical, servohydraulic or custom test systems, including: **Instron®, **Zwick®, **Tinius Olsen™, **SATEC®, **Baldwin® and more with an MTS ReNew™ Upgrade.

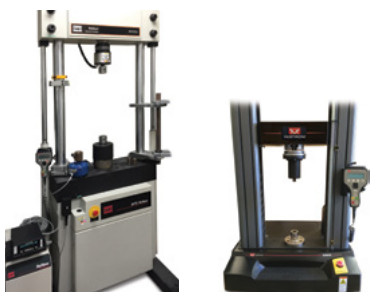
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MTS Criterion® & MTS Exceed®
Electromechanical Universal Test Systems



MTS Landmark®
Servohydraulic Test Systems



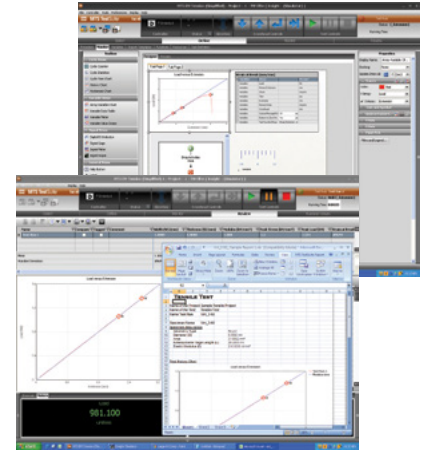
MTS ReNew™
Upgrade for Hydraulic & Electromechanical Test Systems

GRIP OPTIONS*

	<p>MTS provides a vast array of manual, pneumatic and hydraulic grips that set the standard for accuracy and repeatability, exceeding industry standards to ensure repeatable testing and credible test data.</p>
<p>Threaded & Shoulder Grips</p>	
<p>» For threaded-end specimens » For shoulder-block or button-end specimens</p>	

SOFTWARE & CONSULTING OPTIONS*

About MTS TestSuite™ TW	ASTM A48/A48M Standard Specification for Gray Iron Casting Test Method Template
<p>The efficient MTS TestSuite TW software provides the versatility required to address unique and complex testing requirements.</p> <p>twe TestSuite TW Elite includes all the test definition capacity and flexibility test designers need to create and edit custom test sequences while accommodating the specific runtime needs of lab personnel.</p> <p>twx TW Express is designed for the test operator and is used to run tests created with TW Elite and can be used without fear of inadvertently modifying the Test Method. This application allows the operator to easily execute even the most complex tests and monitor data or calculated values in runtime views that can be tailored by both test designers and operators.</p>	<p>To simplify testing to ASTM A48/A48M, MTS has developed a TestSuite TW test method template that will set-up and run the recommended tensile tests.</p> <ul style="list-style-type: none"> » Crosshead/actuator or extensometers can be used for strain measurement and control » Post-test review tab and reports show data in stress-strain plots and highlight calculated values such as yield strength, yield point elongation, tensile strength, elongation, and more » Raw data can be exported in many formats including CSV and TXT » Test methods, calculations, review displays, and report layouts can be customized by the user

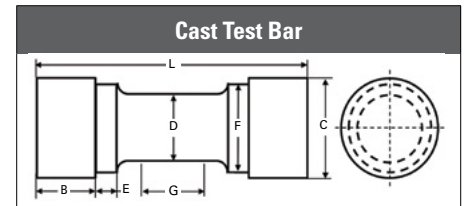


MTS Consulting Can Enable LIMS Integration & Other Lab Efficiency Enhancements
<p>MTS consultants are available to support seamless data integration from your TestSuite test templates to your laboratory information management system (LIMS). Lab Efficiency Enhancements could include:</p> <ul style="list-style-type: none"> » Integrating bar code scanners, reading data from micrometers and calipers, capturing video via webcam » Automating the interface of two-way communications between TestSuite and virtually any LIMS system

*NOTE: This technical note is intended to show some of the more common solutions used for this particular application. Most often, additional options are available and necessary to accomplish more comprehensive test objectives.

APPENDIX - TEST SPECIMEN DETAIL

ASTM A48/A48M supports four different types of cast test bars with either button-head or threaded end types. Please consult ASTM A48/A48M for more detailed information about the supported specimen geometries.



Test Bar Type	Length of Parallel Section (G) mm/in	Diameter (D) mm/in	Overall Length (L) mm/in	Diameter of End Section (C) mm/in	Length of Shoulder mm/in	Diameter of Shoulder (F) mm/in	Length of End Section (B) mm/in
A	13 / 0.5	13 / 0.5	95 / 3 3/4	20 / 7/8	6 / 1/4	16 / 5/8	Optional*1
B	19 / 0.75	20 / 0.75	100 / 4	20 / 1 1/4	6 / 1/4	24 / 15/16	
C	32 / 1.25	30 / 1.25	160 / 6 3/8	47 / 1 7/8	8 / 5/16	36 / 1 7/16	
S	To be agreed upon by supplier and purchaser						

*1 For threaded ends: Root Diameter < Diameter of Shoulder (F)



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