

Our Mission Statement

Our Mission is to provide industry with materials, equipment and engineering services for welder testing, welder training and procedure qualification quickly, accurately and cost effectively. Our friendly, knowledgeable and professional staff's top priority is quality adherence and customer satisfaction.

History

Triangle Engineering, Inc. (TEI) is a family-owned company, founded in 1960 by Alexander Coulstring, and sons, Bob and Alec. Combining talents and experience in welding and mechanical engineering, TEI established a national reputation for supplying the welding industry with equipment and consulting for welder testing, welder training, and procedure qualification.

TEI began as a precision machining and fabrication shop performing an array of work for its customers, some notable projects included underwater research buoys for Woods Hole Oceanographic Institution, processing systems for Ocean Spray Cranberries, Inc., and ultra-high vacuum systems for NASA and the United States Air Force.

By early 1970, through experience gained serving various clients, TEI identified the need to reduce the time and cost required to qualify welders, especially on large scale, fast paced projects. Through interpretation of welding codes, TEI established standard weld test coupon sizes in pipe and plate and began manufacturing them regularly.

To expedite the testing of welded coupons TEI designed, patented and began manufacturing destructive test equipment for the removal, preparation and bending of weld test straps in accordance with American Society of Mechanical Engineers (ASME), American Welding Society (AWS), American Petroleum Institute (API) and other applicable welding codes.

Today, after 55 years in business, Triangle Engineering, Inc. remains the industry leader in the manufacture of weld test materials for performance and procedure qualification. TEI's line of destructive test equipment continues to provide an expansive customer base with the means to qualify its welding workforce quickly, accurately and cost effectively. To complement our offerings, we also provide a full range of testing services utilized by many organizations globally.

"Triangle is without a doubt the #1 leader in the construction and maintenance industry in their type of work and skills. That is the reason throughout the years, I have given them as my only recommended material supplier, and as a source for their industry tribal welding knowledge, which as we all well know is not easy to come by. If Triangle Engineering is not on your *Approved Suppliers List* your tool belt is incomplete and you're not doing as well as you think"

*Paul Evans, CB&I
Sr. Welding Engineer*

"Triangle has continually provided our team with excellent support and service, and they're always able to respond to even our 'quick-turn' needs. Weld coupons, even for specialty alloys, are always available on short notice. At Triangle, the staff is technically sound and their engineering services are outstanding. In this business it's important to work with people you trust, and time and time again Triangle has come through for the Bowen team."

*Andy McKerrow, Bowen Engineering Corp.
Corporate Quality Manager*



Made in the USA



TRIANGLE ENGINEERING, INC. Services for the Welding Industry

6 Industrial Way, Hanover, MA 02339-2425
781.878.1500 • 781.878.1374 • Fax 781.878.2547
email: info@trieng.com • www.trieng.com

 Like us on facebook



The trusted source for all your weld qualification needs



Weld
Test
Materials

Destructive Test
Equipment

Weld Engineering
& Consulting

Complete Testing Services



TRIANGLE ENGINEERING, INC.
Services for the Welding Industry

WELD TEST MATERIALS

Triangle Engineering's pipe and plate coupons are an economical alternative to flame cutting, grinding and manually machining bevels on your coupons. All incoming raw material is carefully inspected for adherence to customer requirements and established quality standards throughout the manufacturing process.

Pipe Coupons • Plate Coupons • Brazing Coupons • Sheet Metal Coupons • Procedure Materials • Backing Bar • Backing Rings • Training Coupons • Material Management Services

Welder Qualification Materials

Carbon Steel • Stainless Steel • Aluminum • Nickel Alloy

Monster Coupon. Our 2-3/4" OD x 5/8" wall A106 Gr. B coupon can save 80% labor and materials utilizing the ASME Section IX code. The Monster Coupon will qualify for unlimited thickness and diameters as small as 1" OD using two weld processes.

Weld Procedure Qualification Materials

Aluminum • Incoloy • Monel • Inconel • Bronze • Low-Med-High Alloy Steel • Duplex SS • Titanium • Cr-Moly • C-Moly • Hastelloy • Copper Nickel • Ferralium • Zirconium

P1 to P62 – Butt Welds – Hardfacing – Corrosion

Now Stocking!

Hard to find ASME group number materials:
P1 – Dual cert. G1 & G2, P1 – G3
P3 – Dual cert. G1 & G2, P3 – G3



Training Coupons and Backing Rings



Monster Coupons prepackaged for same day shipping



Performance and Procedure Test Plates



Securely palletized for convenient handling and storage

Important Features

- ▶ Coupons are kept in stock and ready for shipment
- ▶ Material continuously striped with heat numbers
- ▶ Certified mill test reports provided with every shipment
- ▶ Machined surfaces coated with weldable rust preventative
- ▶ Various weld joint configurations available: single, double, compound, j-prep, groove, custom
- ▶ Pipe coupons available from 1/4" to 12" NPS
- ▶ Plate coupons available from 25GA to 2" thickness

Value Added Service

Not sure what you need? Put our welding code experience and metallurgy knowledge to work for you. Tell us your requirements and we'll make sure you get exactly what you need. If we don't have it, we pride ourselves in finding it!

Visit our **ONLINE STORE** for convenient purchasing and **NEXT DAY shipping!**

DESTRUCTIVE TEST EQUIPMENT

Triangle Engineering's line of destructive test equipment provides industry with the means to qualify its welding workforce quickly, accurately and cost effectively. Durable, industry tested designs provide decades of reliability.

FAST • EFFICIENT • ACCURATE • CODE COMPLIANT

Weld Coupon Abrasive Cutter



Work Station
Pipe capacity:
Up to 10" sch 160



Work Station
Plate capacity:
Up to 1-1/2" thick

Removes four guided-bend test specimens to exact dimensions in under 5 minutes.

MODEL NO. WTC-20HR

ELECTRICAL Wheel drive motor: 15 H.P., continuous duty, 220/3 or 440/3 - 60 cycle 3500 RPM (Wheel Spindle - 2200 RPM). Blower exhaust motor: 1 H.P., 220/3 440/3 - 60 cycle 3500 RPM. Internal lighting circuit: 24V DC LED

EXHAUST SYSTEM Completely enclosed grit collector coupled with integral exhaust blower system.

ABRASIVE WHEEL 20" x 1/8" x 1" - B2D

AIR PRESSURE 80 P.S.I. 2 Cubic Ft./cycle

DIMENSIONS Width: 42 1/2", Length: 72", Height: 85"

WEIGHT 2,240 LBS.

Backstrap Removal Tool



Backstrap removal tool
closeup

Provides rapid, uniform surface prep of guided-bend test specimens prior to testing.

MODEL NO. BSRT-15/10

ELECTRICAL 1 1/2 H. P., 220V, 9 amp. single phase motor, 3450 RPM. Exhaust blower, 1/3 H.P., 1725 RPM, 530 CFM

GRINDING WHEEL 8" x 1" x 5/8"

DIMENSIONS 48" overall height from floor, 18" wide, 48" front to rear

WEIGHT 350 LBS.

Guided Bend Testing Machine



Guided bend testing machine
closeup

Four guided-bend test specimens formed to uniform 180° in under 3 minutes.

MODEL NO. WTB-HRA/14

ELECTRICAL 1 HP., 110V, self-contained hydraulic system. 15 amp

BENDING MOMENT By hydraulic motor and gearing

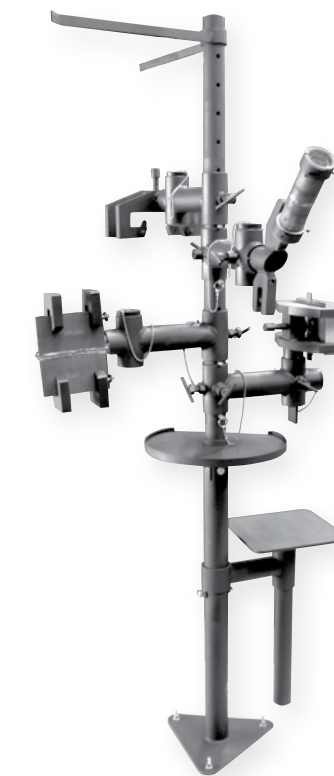
CLAMPING VICE Specially constructed of heat treated, alloy steel with replacement serrated jaws

BENDING RADII Quick change tooling supplied (as standard equipment) for 1 1/2" bending diameter

DIMENSIONS Diameter: 36", Height: 45"

WEIGHT 450 LBS.

Weld Test Stand



Allows for quick, secure positioning of pipe and plate test assemblies.

MODEL NO. WTS-ASSY

ASSEMBLY Stand comes complete with Base, Mast, Tool Tray, (1) Overarm, and Top Brace

PLATE HOLDING FIXTURE 1.5" thick max. capacity in any position

PIPE HOLDING FIXTURE 1.25" wall thickness max. capacity in any position

Pipe Fixture has gas purging capability.

Plate and Pipe Holding Fixtures can be used conveniently in any bench vise.

DIMENSIONS 93" high

WEIGHT 70 LBS.

Equipment is made of heavy, rugged construction, built both for laboratory use and on the job locations. Our equipment is utilized by many organizations in the following sectors:
Power • Oil & Gas • Infrastructure • Manufacturing • Construction • Education • Training & Testing

TESTING, CERTIFICATION & ENGINEERING SERVICES

TEI operates an in-house mechanical testing lab offering complete welding, brazing and procedure qualification testing in accordance with various codes including: API, ASME, AWS, MIL-STD, NAVSEA, etc. Testing results are available within 3-5 business days. Expedited services also available upon request.

- ▶ Tension & Compression Testing
- ▶ Guided Bend Testing
- ▶ Tensile Testing
- ▶ Charpy Impact Testing
- ▶ Drop Weight Testing
- ▶ Corrosion Resistant Overlay
- ▶ Hardfacing Overlay
- ▶ Post Weld Heat Treatment
- ▶ Metallurgical Polishing
- ▶ Qualification of Electrodes
- ▶ Delta Ferrite Measurement
- ▶ Magnetic Particle
- ▶ Liquid Penetrant
- ▶ Visual Inspection

WELDER CERTIFICATION SERVICES

TEI offers certification services at our AWS Accredited Test Facility. Service includes our facilities, materials, testing and results provided same day. We also offer welding booth rentals and CWI services.

WELD ENGINEERING & CONSULTING

TEI's weld engineering and consulting has proven highly valuable within the industry as related to the application of a wide variety of procedure qualification materials.

Welding Code Interpretation: ASME, AWS, API, AS/NZS, CSA, BS, ISO, CEN, DIN, MIL-STD, NAVSEA

Welding Procedure Specification (WPS)

Procedure Qualification Record (PQR)