



ISO Registered

Metallurgical & Nondestructive Testing

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Prices are based on testing to the following specifications:

ASTM, API, AWS and ASME

(Other specifications may incur Engineering Review Charges – See page 7.)

Note: Additional charges may incur if extra specimen preparation is required (i.g. high hardness materials, threaded tensile, small specimens, etc.). Charges for such preparation will be added to prices listed.

3rd Party Witness Charge – \$35.00

(Additional charges may apply based on schedule coordinating and testing time.)

TENSILE TESTING includes yield, elongation & reduction of area.

Carbon Steel – Low Alloys – Aluminum	
.500" .350" .250"	\$65.00
Under .250"	Price upon request
Elevated Temperature (yield & modulus for information only.)	\$225.00
Stainless Steel – Duplexes – Brass	
.500" .350" .250"	\$75.00
Under .250"	Price upon request
Elevated Temperature (yield & modulus for information only.)	\$235.00
Nickel Alloys – Beryllium Copper – Tool Steels – Titanium	
.500" .350" .250"	\$120.00
Under .250"	Price upon request
Elevated Temperature (yield & modulus for information only.)	\$250.00
Through Thickness Tensile: Carbon Steel – Low Alloys	
Under 6" Thick	\$250.00
6" Thick & Over	\$65.00
Load to Failure (Pull Test)	Price upon request
Stress/Strain Charts (upon request)	\$25.00

CHARPY IMPACT TESTING includes lateral expansion & percent shear.

Carbon Steel – Low Alloys – Aluminum	
Full Size:	
Ambient to -100°F	\$100.00
-101°F to -325°F	\$115.00
Sub Size (thickness less than .394"):	
Ambient to -100°F	\$110.00
-101°F to -325°F	\$125.00
Stainless Steel – Duplexes – Brass	
Full Size:	
Ambient to -100°F	\$120.00
-101°F to -325°F	\$135.00
Sub Size (thickness less than .394"):	
Ambient to -100°F	\$145.00
-101°F to -325°F	\$165.00
Nickel Alloys – Beryllium Copper – Tool Steels – Titanium	
Full Size:	
Ambient to -100°F	\$160.00
-101°F to -325°F	\$175.00
Sub Size (thickness less than .394"):	
Ambient to -100°F	\$190.00
-101°F to -325°F	\$205.00
Strain Aged Charpy Impacts (per set)	\$300.00

WELD SAMPLE TESTING *Reduced Section Tensile*

Carbon Steel – Low Alloys – Aluminum		
Up to 1”	\$70.00	
Over 1”	\$85.00	
Stainless Steel – Duplexes – Brass		
Up to 1”	\$80.00	
Over 1”	\$95.00	
Nickel Alloys – Beryllium Copper – Tool Steels – Titanium		
Up to 1”	\$110.00	
Over 1”	\$160.00	
Stress/Strain Charts (upon request)		\$25.00

WELD SAMPLE TESTING *Charpy Impact*

See Charpy Impact Testing on page 3.

BEND & NICK BREAK TESTING

Carbon Steel – Low Alloys – Aluminum	
Bend Test	\$60.00
Nick Break	\$65.00
Stainless Steel – Duplexes – Brass	
Bend Test	\$65.00
Nick Break	\$70.00
Nickel Alloys – Beryllium Copper – Tool Steels – Titanium	
Bend Test	\$80.00
Nick Break	\$85.00

FRACTURE MECHANICS

CTOD Testing (three specimens) E-BS 7448 Part 1 & 2, ASTM 1290	Price upon request
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HARDNESS TESTING

Hardness pricing for Nondestructive Testing – See Nondestructive Testing on page 8.

Brinell or Rockwell (minimum)	\$45.00
Brinell or Rockwell (when in conjunction with mechanical testing)	\$10.00
One (1) Quadrant Survey	\$80.00
Four (4) Quadrant Survey	\$125.00
*Rockwell Hardness Weld Survey (up to 18 points)	\$120.00
*Rockwell Hardness 15 N Weld Survey (up to 19 points)	\$140.00
*Vickers Hardness Weld Survey (up to 19 points)	\$155.00
*Vickers Hardness Traverse (up to 10 points)	\$125.00
*Case Depth – Vickers or Knoop (up to 10 points)	\$125.00
Jominy (End Quench Hardenability)	\$250.00
Hardness Survey Additional Points	\$5.00/each

*Note: Hardness survey may require additional points.

METALLOGRAPHY

Failure Analysis	Price upon request
<i>Carbon Steel – Low Alloys – Aluminum</i>	
**Microstructure Evaluation (includes one (1) sample preparation)	\$105.00
**Grain Size per E-112 (in conjunction with Micro Evaluation)	\$70.00
**Grain Size per E-112 (not in conjunction with Micro Evaluation)	\$115.00
Grain Direction	\$55.00
<i>Stainless Steel – Duplexes – Brass & Nickel Alloys – Beryllium Copper – Tool Steels – Titanium</i>	
**Microstructure Evaluation (includes one (1) sample preparation)	\$120.00
**Grain Size per E-112 (in conjunction with Micro Evaluation)	\$80.00
**Grain Size per E-112 (not in conjunction with Micro Evaluation)	\$125.00
Grain Direction	\$70.00
**McQuaid-EHN Grain Size with Heat Treatment	\$300.00
Inclusion Rating per E-45:	
Method A, B or C	\$105.00
Method D	\$250.00
**Macroetch Examination per E-381:	
Bar or Forging – up to 6” square	\$135.00
Over 6”	Price upon request
**Macroetch Examination – Grain Flow Determination:	
Bar or Forging – up to 6” square	\$105.00
Over 6”	Price upon request

METALLOGRAPHY *(continued)*

Ferrite Point Count per E-562	\$160.00
**Decarburization	\$120.00
Metallurgical Photos	\$30.00

**Note: Photos will be added to the above Metallography prices unless otherwise specified on purchase order.

CHEMICAL ANALYSIS

Spectrograph (up to 10 elements):	
<i>Carbon Steel – Low Alloys – Aluminum</i>	\$70.00
<i>Stainless Steel – Duplexes – Brass</i>	\$90.00
<i>Nickel Alloys – Beryllium Copper – Tool Steels – Titanium</i>	\$100.00
Spectrograph Additional Elements	\$5.00/each
Re-Melt Button (required for shavings & turnings)	\$90.00
Nitrogen:	
<i>Carbon Steel – Low Alloys – Aluminum</i>	\$60.00
<i>Stainless Steel – Duplexes – Brass</i>	\$75.00
<i>Nickel Alloys – Beryllium Copper – Tool Steels – Titanium</i>	\$85.00
Hydrogen	Price upon request

CORROSION TESTING

ASTM A262:	
Practice A – Screening	\$120.00
Practice B – 5 Day Test	\$275.00
Practice C – 10 Day Test	\$350.00
Practice E – 1 Day Test	\$175.00
Practice F – 5 Day Test	\$275.00
Sensitization (required for extra low carbon & stabilized grades, i.e: 304L, 316L, 317L, 321 & 347)	\$50.00
ASTM G28 Method A	\$275.00
ASTM G48:	
Method A or B	\$175.00
Method D	\$225.00
ASTM A923:	
Method A – Screening	\$120.00
Method C	\$175.00

HEAT TREATMENT

Normalize or Austenitize & Quench

First Hour	\$40.00
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Additional Hours	\$25.00/hour
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Temper

First Hour	\$35.00
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Additional Hours	\$25.00/hour
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Post Weld (ASME Code Up & Down)

First Hour	\$35.00
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Additional Hours	\$30.00/hour
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Annealing	Price upon request
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Heat Treat Charts (upon request)	\$25.00
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MISCELLANEOUS

Ferrite Measurement by Fischer Scope:

Minimum	\$75.00
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Per reading	\$25.00
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Flattening:

Up to 125,000 lbsf	\$65.00
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Above 125,000 lbsf	Price upon request
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Drop Weight Testing (set of two)	\$250.00
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Engineering & Consulting	\$150.00/hour
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Special Project Review & Layout	\$85.00/hour
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Documentation Fee (after first revision)	\$35.00/each
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SAWING CHARGES

Oversize Test Samples (over 6" x 6" x 10")	\$55.00/hour
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Prolongation	Price upon request
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Sawing will be charged on hourly rate plus consumables.

NONDESTRUCTIVE TESTING

3rd Party Witness Charge – \$50.00

(Additional charges may apply based on schedule coordinating and testing time.)

Level III Consulting	\$150.00/hour
Level III Services	Price upon request
Level II Technician:	
Ultrasonic	\$70.00/hour
Magnetic Particle	\$70.00/hour
Dye Penetrant	\$75.00/hour
Specialized Dye Penetrant	Price upon request
Field Services	\$300.00 minimum
Additional Hours	\$70.00/hour
Additional Personnel Required (per person)	\$65.00/hour
PMI (Positive Material Identification)	\$125.00/hour
PMI Field Services	\$500.00 minimum
AMS 2301	\$225.00
Tubular Over 11"OD	\$330.00
Heat Treatment prior to AMS 2301	\$50.00
Brinell Hardness (minimum or 1 st reading)	\$65.00
Brinell Hardness (additional readings)	\$15.00/each
Rockwell Hardness (minimum or 1 st reading)	\$65.00
Rockwell Hardness (additional readings)	\$25.00/each
Setup/Handling	\$100.00

OVERTIME RATES

One and one half times published pricing.

Definition:

1. Any work performed outside of what is considered normal and customary turnaround.
2. Work performed after normal business hours. Normal business hours are Monday through Friday, 7:00am to 5:00pm.

Weekends & Holidays: Price upon request.

TERMS

3% 10 Days Net 30

Payments not made within terms may be subject to interest at the rate of 1.5% per month.