

PROTO

The image features a central X-ray diffractometer (XRD) setup. The main body is a large, circular, metallic chamber. In the foreground, there is a goniometer with a sample stage and a detector arm. The background is a dark, textured surface with several mathematical formulas overlaid in a light, semi-transparent font. The formulas include $n\lambda = 2d\sin\theta$ on the left, $\sigma = \epsilon E$ in the top right, and 2θ in the bottom center. The overall lighting is a warm, golden-yellow hue.

$$n\lambda = 2d\sin\theta$$

$$\sigma = \epsilon E$$

$$2\theta$$

Over 30 Years Specializing in Residual Stress & Retained Austenite Measurement

EXPERIENCE

IN RESIDUAL STRESS

KNOWLEDGE

OF DIVERSE INDUSTRIES

COMPLIANCE

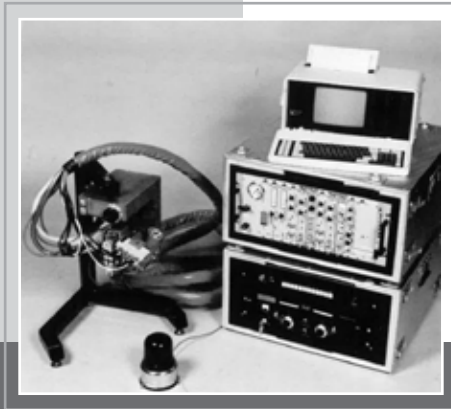
NATIONAL & INT'L STDS

QUALITY

ISO 17025 ACCREDITED

■ WHY CHOOSE PROTO?

When faced with deciding what company you want to work with for your residual stress measurement needs, we understand that there are many factors to consider. When you choose PROTO, you are getting more than just measurements, you become a valued part of our network and gain access to our extensive knowledge in the area of residual stress and retained austenite measurement. We take the time to learn and understand your project, so that our team of experts can decide what options will best suit your needs for long-term success.



■ A HISTORY OF EXCELLENCE

With over 30 years specializing in XRD technology, PROTO is proud to be recognized as a world-class x-ray diffraction company. In 1982, we developed our first x-ray diffraction residual stress system and have since expanded our residual stress & retained austenite product line to include laboratory, portable and ultra-portable measurement systems.



TRUSTED EXPERTS IN

RESIDUAL STRESS



TECHNOLOGY THAT DELIVERS

ACCURATE RESULTS

■ IN THE FIELD

There are many complex situations that can arise when doing field measurements. Now that you've chosen PROTO, you can rest assured that the job is going to get done accurately and on time. With over 150 years of combined field experience, our trained technicians will ensure that measurements are precise, and that all protocols are met.

Our team has traveled across the globe to meet the needs of our clients, working in a diverse range of applications: Bridges, Pipelines, Aerospace, Marine, Turbines, Automotive, Power Generation, Military





EXPERIENCED TECHNICIANS

IN THE FIELD



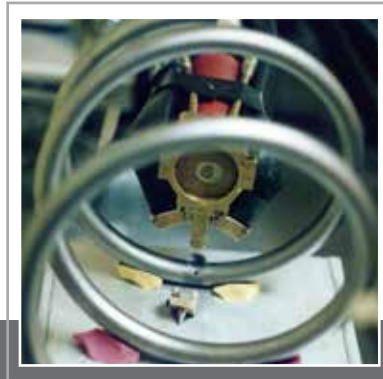
BREAKING BOUNDARIES IN THE

LABORATORY

■ IN THE LAB

You want a laboratory that you can count on to solve the most advanced residual stress issues. That's why for over 30 years PROTO's laboratories have been providing superior x-ray diffraction measurement services to industry.

Our full service laboratories have all the tools necessary for carrying out your measurement requirements. Our ISO/IEC 17025:2005 accredited laboratories have the highest quality standards and procedures. With over 20 dedicated XRD systems we can accommodate your laboratory and field measurement needs, with fast, accurate and efficient service.



"Our team is dedicated to customer satisfaction by supplying the best technology and knowledge with quality, service and value in all of our products and services."

- Michael Brauss, President

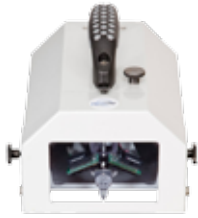


Comprehensive solutions to get you from start to finish.
We make all of the ancillary products needed for residual stress measurement including, electropolishers, standards, 4-point bend rigs, and x-ray tubes.



■ LABORATORY RS & RA
MEASUREMENT SYSTEMS

TURN-KEY SOLUTIONS FOR RESIDUAL STRESS



ULTRA PORTABLE RS MEASUREMENT SYSTEMS

PORTABLE RS & RA MEASUREMENT SYSTEMS

ACCESSORIES



PROTO laboratory located in Taylor Michigan

LAB MEASUREMENT SERVICES

XRD RESIDUAL STRESS MEASUREMENT

- Ideal for metals and ceramics
- ASTM E915, E2860, E1426, SAE HS-784
- Residual stress vs. depth, RS mapping
- Single crystal residual stress determination

XRD RETAINED AUSTENITE MEASUREMENT

- ASTM E975, SAE SP-453
- Carbide evaluation and correction

HOLE DRILLING RESIDUAL STRESS MEASUREMENT

- ASTM E837
- Ideally suited for non-crystalline materials

SAMPLE PREP

- Saw cut sectioning, EDM sectioning
- Surface grinding, cut-off wheel sectioning
- Strain gauge installation & monitoring during sectioning
- Paint, coating and scale removal
- Electropolishing

WORLDWIDE SALES & SERVICE LOCATIONS

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ALL LOCATIONS ARE EQUIPPED WITH FULL SERVICE LABORATORIES FOR CONTRACT MEASUREMENT SERVICES.