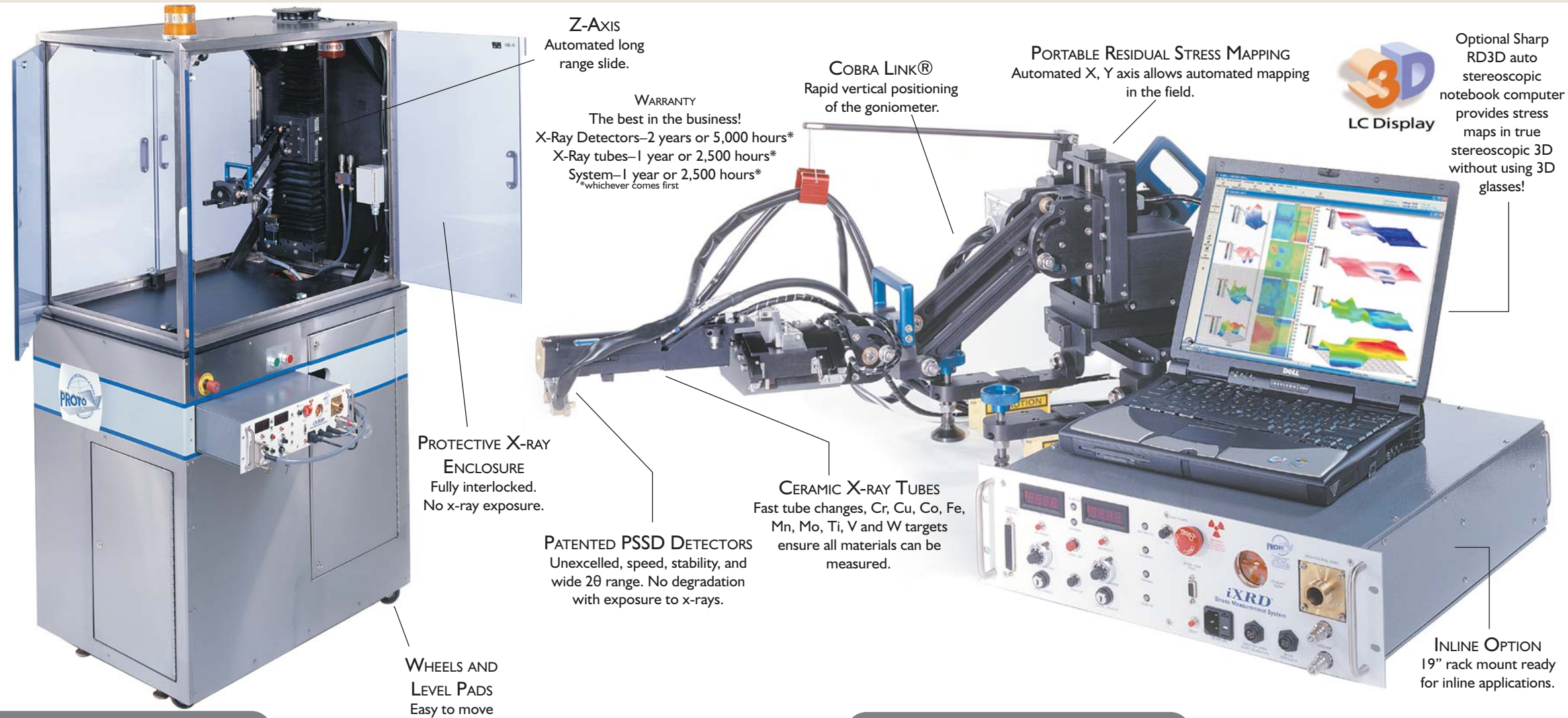


iXRD Combo

The iXRD Combo combines the versatility of the iXRD with the convenience and safety of a fully interlocked enclosure. Easily transformed from a lab system to a portable system in minutes, the iXRD Combo is ideally suited for customers who need a stable laboratory system but also need the ability to move out into the field when required.

iXRD Combo is available with standard or widebody enclosure for large part capacity, flexible goniometer and field stand options and optional laboratory residual stress mapping.



Goniometer Options

MG40P



Our standard portable goniometer. With a 40 mm focal distance and a 30 mm x-ray tube the MG40P offers a great balance between size and versatility.

MG30P



With a 30 mm focal distance and a 16 mm x-ray tube the smaller MG30P is ideal for those tight locations.

Field stand options

FS2



A low cost basic stand for added flexibility in the field

Standard features: Automated or manual Z-axis, Cobra-link® allows for rapid vertical positioning of the goniometer while keeping it orthogonal to the specimen surface, magnetic feet, adjustable foot pads, security strap.
Options: Manual X, Y axis.

FS4



Our standard for portable stress measurement

Standard features: Automated X, Y and Z-axis, full-featured field residual stress mapping, Cobra-link® allows for rapid vertical positioning of the goniometer while keeping it orthogonal to the specimen surface, magnetic feet, adjustable foot pads, security strap
Options: Manual X, Y axis.

FS5



Our new lightweight fully-automated field stand for portable stress mapping

Standard features: Automated X, Y and Z-axis, full-featured field residual stress mapping, Cobra-link® allows for rapid vertical positioning of the goniometer while keeping it orthogonal to the specimen surface, magnetic feet, adjustable foot pads, security strap, light weight.
Options: Suction cup feet for mounting to non magnetic structures such as aircraft wings.

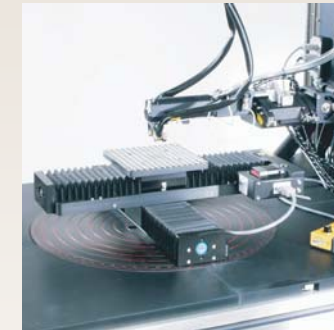
Enclosure options

BASIC



A basic enclosure with an automated Z-axis.

LABORATORY MAPPING



Automated X, Y & Φ axis for full featured laboratory mapping. Can be added to either standard or widebody enclosure.

WIDEBODY



Optional oversized enclosure for increase part size capacity.
Standard Dimensions: 1820 x 1040 x 660 mm
Widebody Dimensions: 1820 x 1090 x 860 mm

iXRD Specifications

iXRD INSTRUMENT MODULE

Light weight, compact field proven performer the iXRD has set the standard for portable residual stress analysis instrumentation. Built in high voltage generator, self contained recirculating high efficiency liquid to air heat exchanger and the necessary electronics to run the goniometer and field stand of your choice.

WEIGHT

iXRD Module 14.7 kilograms

DIMENSIONS

iXRD power unit L x W x H: 56cm x 12.5cm x 48cm
19 inch rack mount ready

OPERATING TEMPERATURE RANGE

0°C to 35°C non-condensing humidity

POWER REQUIREMENTS

90-265 VAC 50/60hz 10 amps

GONIOMETERS

ψ (Omega) geometry or χ (Side inclination) geometry
Manual and automatic focusing.
MG40P - 40 mm focal distance
MG30P - 30 mm focal distance
Fully adjustable ψ , X, Y, Φ , range and oscillation
"Through the collimator" spot indicator.

APERTURES

"Snap in" style apertures can be changed in seconds.
Standard set: 0.5, 1.0, 2.0 mm round, 0.5x3, 3x0.5, 1x3, 3x1, 0.5x5, 5x 0.5, 1x5, 5x1, 1.5x5, 5x1.5 mm
Extended set: 0.2, 1.5, 2.5 mm round, 2x5, 5x2, 0.2x3, 3x0.2, 0.5x2, 2x0.5, 1x2, 2x1mm
Large grain aperture set: 3.0, 4.0mm round, 2x3, 3x2, 2x5, 5x2, 2.5x5, 5x2.5, 1.5x4, 4x1.5, 2x4, 4x2 mm
Stress profiling and mapping aperture set: 0.2 mm round 0.2x3, 3x0.2, 0.2x5, 5x0.2, 0.5x2, 2x0.5, 1x1, 2x2, 1x2, 2x1 mm
Custom apertures also available.

X-RAY DETECTORS

Patented position sensitive scintillation detectors (PSSD). These x-ray detectors provide unexcelled speed, stability and wide 2θ range, and, unlike other x-ray detectors, do not deteriorate with exposure to x-rays. No expensive replacements required. The detectors can be quickly positioned in ψ (Omega) geometry or χ (Side inclination) geometry. Two detectors for unsurpassed accuracy and speed.

DETECTOR SPECTRA WINDOW

MG40P - 18.18 degrees 2θ per detector
MG30P - 24.09 degrees 2θ per detector

2θ RANGE

123°-171° is standard, extended ranges are available.
Detectors are easily moved into position and secured by hand along the arcs.

X-RAY TUBES

Proto manufactures its own line of x-ray tubes specifically designed to enhance the performance, reliability and capabilities of our portable x-ray diffraction systems. Our unique designs have advanced the state-of-the-art in x-ray tube performance, size and ruggedness. Our fine focus x-ray tubes feature an advanced ceramic body with optimized liquid cooling.



Available in miniature (30mm diameter) tubes for the MG40P goniometer and micro (16mm diameter) tubes for use in the MG30P goniometer. Available x-ray tube targets include Cr, Cu, Co, Fe, Mn, Mo, Ti, V and W, with nominal power ranges from 40 to 300 watts depending on the target material and x-ray tube size. Custom x-ray tubes and targets are also available. Water cooled with quick disconnects. Pre aligned x-ray tubes can be exchanged in less than 3 minutes.

FILTERS

K β filters are placed in front of the PSSD detectors in pre-machined slots and are supplied in pairs with each Proto x-ray tube, appropriate to x-ray tube target material.

SAFETY

8 m cable between goniometer and power unit.
Warning light beacons for x-ray on and shutter open mounted on a magnetic stand for easy positioning and maximum visibility.

LAPTOP

Proto provides the latest generation brand name laptop computer with each iXRD.

SOFTWARE

Powerful yet easy to use XRDWin 2.0™. A comprehensive Windows™ based data collection and stress analysis package Linear and elliptical regression, Dolle-Hauk method, triaxial method. Parabolic, Gaussian, Pearson VII, Cauchy, centroid, centered centroid, mid-chord fitting. Graphical display of "d", "2 θ ", "intensity", "breadth", "FWHM" vs. $\sin^2\psi$ or $\sin^2\chi$. Residual stress mapping with 3D map display. X-ray elastic constant determination. Principle stress calculator, material removal corrections, depth of penetration correction. Retained austenite measurement. Inline inspection monitor.

ACCESSORIES

Field stands FS2, FS4, FS5
Alignment scope.
Custom field stands and goniometers.
Custom enclosures and inline inspection rigs.
Extended warranty and maintenance agreements are available.



**AUTOMATED RESIDUAL
STRESS ANALYSIS**

iXRD Combo

*Laboratory & Portable Non-Destructive
Residual Stress Measurement System*



Rev.iXRDC04001



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