

Difftech

Software Accessories
and Upgrades for X-ray Diffractometers



Who is GBC Scientific Equipment?

GBC Scientific Equipment Pty Ltd commenced operations in 1978. GBC designs, manufactures and markets a range of scientific instruments comprising quality analytical Atomic Absorption spectrometers (AAS), UV-Visible



spectrometers (UV-VIS), Inductively Coupled Plasma Optical Emission spectrometers (ICP-OES), Inductively Coupled Plasma orthogonal Time of Flight Mass spectrometers (ICP-oTOFMS), High Performance Liquid Chromatographs (HPLC), Fastest Viscoelastic Biomechanical Rheometry and now XRD instruments and upgrades.

GBC's growth has been fuelled by its extensive AA expertise, innovative

thinking and an obsession for quality and reliability. GBC now produces the widest range of AA spectrometers in the world.

Endorsed by the international quality standard, ISO 9001, the company prides itself on developing products to exceed market expectations.

GBC is the proud recipient of many international and export awards for state-of-the-art technology and design throughout the world.

The company is proudly Australian and Head Office is based in Melbourne. The GBC network spans all sectors of the globe. Now more than 25 years after its inception, GBC is renowned as being progressive in the elemental and materials analysis fields.

GBC customers benefit from an efficient and effective global organization. Access to information, applications support and technical service is never more than a phone call or e-mail away.

ISO 9001 QUALITY ACCREDITATION

GBC has always placed a strong emphasis on quality in all aspects of our operation, from design and manufacture to the provision of service and support to our customers, and we are fully committed to continuous evaluation and improvement in all areas.

The GBC Quality Management System has been accredited to the ISO 9001 quality standard by Lloyd's Register Quality Assurance Limited. This certification is your assurance that the procedures and processes used to produce the goods and services which GBC provides comply with the relevant International Standard, and demonstrates our commitment to meeting the needs and the expectations of our customers.



What is the GBC vision?

GBC Scientific Equipment

will

advance people's knowledge

and

their capacity to enhance the quality of life



for all humankind.

GBC's product lines...



AAS



HPLC



ICP-OES



ICP-oTOFMS



Rheometer



UV-Vis



XRD

Difftech Model 122D



122D Upgrade added to Philips PW 1050 goniometer

Difftech 122D X-ray Powder Diffractometer Upgrade (including hardware and software)

Difftech 122D Hardware

The GBC Difftech 122D offers flexibility to drive $\theta/2\theta$ coupled or decoupled goniometers, automatic sample loaders or any XRD system. Traditional single pass scans are complemented by multi-pass averaging scans (with successive scans accumulating to improve measurement statistics and to provide unlimited scan times). Any mode can be selected via the menu.

Analysis is easy with inbuilt automated features that allow for control of auto loaders, multiple axes, special devices, textures and stress goniometers and heating stages.

Difftech 122D Automation Software

The software is PC-based 32 bit and operates with all Microsoft Windows operating systems. It consists of two parts.

(1) Visual XRD Data Collection Software

Visual XRD controls the instrument and collects data files. Intuitive and so easy to use that a scan can be set up and seen with a few mouse clicks and entry of a data file name. Pull down menus allow access to Manual mode for computer-aided alignment.

PHA mode is used for counting electronics' setup, auto loader batch mode, MPA mode, multi-range mode and single axis mode among others.

(2) TRACES Screen Processing Software

TRACES allows for screen processing of data files. It is simultaneously intuitive and comprehensive to enable powerful analysis.

TRACES is designed to work with "real-world" data and includes more than 100 functions which range from background stripping and pattern generation to Search/Match. A policy of "Open Access" means that all data is stored in ASCII files. This means data can be readily investigated and adapted to and from other XRD data analysis software, including some excellent public domain programs. In addition, TRACES provides close integration with ICDD PDF-1, PDF-2 and PDF-4 data bases.



122D Upgrade fitted to Siemens D500 Diffractometer

Integrated and Cost Effective

Software Options

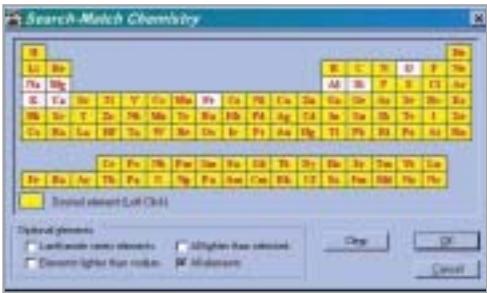
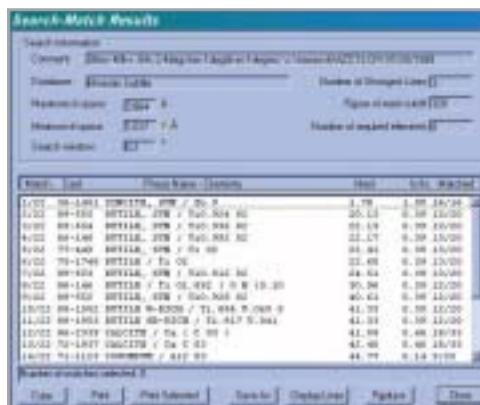
A number of software options are available for integration with TRACES.

DSearch - A Windows Search/Match program. This software performs a Hanawaltsearch on 2 to 9 strongest lines with variable search window and full pattern confirmation. ICDD full-file or sub-files are operational.

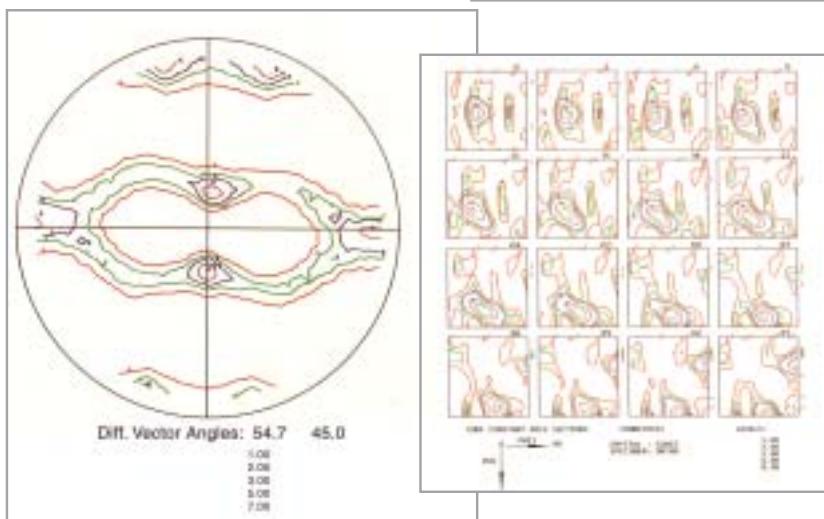
SIROQUANT - pattern synthesis standardless quantitative analysis

INDEX - Windows Indexing

UNIT CELL - Windows Unit Cell Refinements

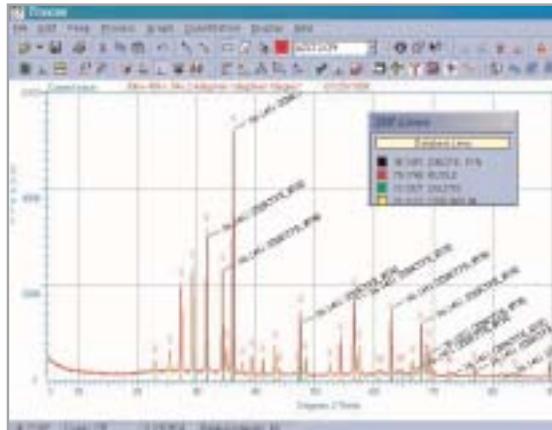


DSearch Chemistry Pre-Screen



Diffractometers already fitted with a Microprocessor controller can be upgraded with software only. There is no need for additional hardware. Software packages are 32 bit Windows code and available for the following instruments:

- Siemens D5000
- Siemens D500 with DACO controller
- Philips PW1710
- Philips PW1800
- Philips PW1840



Display with Database Lines and Labels

Sophisticated and Easy to Use

Accessories

Difftech Detector and Monochromator

The Xe-filled Proportional detector fits most popular goniometers and shielding.

100% efficiency is provided for CuK α and CoK α together with maximum count rates comparable to scintillation detectors and with better signal/noise ratio. The cost effective curved graphite monochromator is available for Cu/Co or for Mo/Ag wavelengths. Fittings are available for most popular goniometers and shielding.



Upgrade graphite monochromator and detector

Fail-Safe X-rays on Warning Lamp

The 15W Lamp provides clear visibility in laboratory conditions. A relay contact in the lamp filament sense circuit can be included in a wide variety of generator interlock circuits.

Warning Lamp

Difftech Texture Automation Upgrades

A texture circle (axes α and β) can be mounted on a Bragg Goniometer (axes θ and 2θ) or alternatively a new goniometer can be automated.

Components are available to fit stepping motors to the α and β axes of manual Texture Circles. It is advised the circle be returned to GBC to have stepping motors fitted.



Operation is via a PC with Windows. The only connection required is an RS232 link between the PC and the Texture system. The Texture package is a complete automation system from collection of pole figure data in format suitable for many popular Texture Analysis packages to calculation and plotting of ODF's

Difftech Texture Automation fitted to a Huber Texture Circle mounted on a harmonic gearbox base goniometer



X-ray Analytical Safety Products

DIFFTECH Shielding Boxes offer optimum protection from X-ray energies. Concealed magnetic proximity switches are provided. Free standing doors allow unobstructed room light. An internal fluorescent light enhances visibility within enclosure. Doors provide access from all sides. Alternative materials are available including rigid clear PVC.

Upgrade with Today's Technology

Specifications

(1) GBC - Difftech 122D Controller

- Modular microprocessor automation unit using STD Bus.
- Matching Stepping Motor Drivers (4 axes) counting electronics, general purpose I/O interface, synchronous motor driver.
- Completely self-contained electronics for XRD, all in one housing for 2U height, 19 inch rack.
- 5-phase Pentasyn stepping motors included.

(2) Software for 122D Controller

32 bit applications for Windows.

Vis XRD for data collection

- Multi-mode data collection.
- Computer-aided alignment.
- Pulse Height Analyser control if fitted.
- Simple and Intuitive to operate.

Traces V6

- Comprehensive screen processing.
- Integrated with ICDD data bases.
- Over 100 functions built-in.
- Easy to use.

(3) Fail-Safe X-rays on Warning Lamp

- Universal circuit adapts to any generator and any mains voltage.
- Can be placed on top of the X-ray cabinets for visibility from all sides.
- Initial glimmer state closes interlock relay. Lamp comes up to full brightness when generator is on.

(4) Shielding Box

- Clear rigid PVC 6 mm.
- Hall-effect device magnet switches, all doors.
- Annunciator panel to show door open/closed status.

(5) Texture Software Features:

- Setup and data collection via optimised counting strategy.
- Pole-figure data collection in fixed time or count mode.
- Plotting of pole figures on screen and XY plotter.
- Analysis of textures by calculation of harmonic coefficients.
- Production of recalculated, ordinary and inverse pole figures.
- Plotting of ODFs on ink jet printer.
- Prediction of mechanical anisotropy in metal sheets due to texture.
- Integration of modern texture software from world authorities in the field.
- Optimised for use with parallel beam optics.

Designed and manufactured by
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GBC reserves the right to change
specifications without prior notice.

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GBC SCIENTIFIC EQUIPMENT

Manufacturer of world-class scientific
instruments and accessories -
AA, HPLC, ICP-OES, ICP-oTOFMS,
Rheometry, UV-Vis and XRD

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Azurite (geological sample)

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