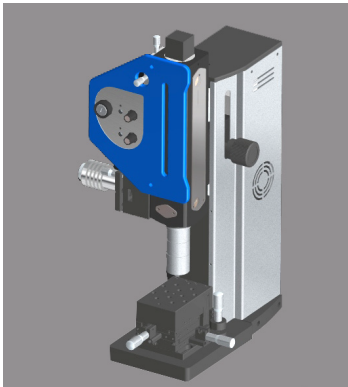




Ruby Detection System (compact)



Product Code: RDS-013

include devices:
 RLS-S01 Ruby lines spectrometer
 RLM-F02 Microscope
 RLC-F02 Calibration neon lamp

The device is a compact box designed to collect the fluorescence emission of a small ruby chip placed inside the sample under pressure in the Diamond Anvil Cell (DAC). Photoexcitation is provided by a Laser source at 532 nm. A long working distance microscope, objective 20X, ensures high efficiency of fluorescence collection and good quality sample image. The fluorescence signal is sent through a dedicated optical fiber system to a compact spectrometer. The side of the microscope has an optical entrance which allows, using the same microscope objective, to enlighten the sample for the visual observation. The ruby lines investigation employs a microscope technique requiring the addition of multiple optical instruments, the laser to excite the fluorescence of the ruby crystal, focusing optics and fiber optic for collection and transmission of fluorescence. A PVM regulator permit to control lighting and laser parameters. The system is assembled with the spectrometer and the calibration lamp. The ruby lines are investigated to measure the pressure by a related software. Each part can sell separately related the customer or experiment's needs.

-The microscope can work in vertical (standard) or horizontal configuration (on request).

TECHNICAL DATA

MICROSCOPE FOR RUBY LINES DETECTION (RLM-F02)	200x Mitutoyo objective - Green Laser - Digital camera
RUBY LINES SPECTROMETER (RLS-S01)	Resolution 0,2 nm - Spectral range 690/740nm - F/N f/3
RUBY CALIBRATION NEON LAMP (RLC-F02)	Neon emission lines
OPTICAL FIBER	50 Microns

HIGHLIGHT

- Lighting and laser control
- Optical fiber
- Flexible design adaptable in many geometry
- Camera to control sample and ruby crystal



Ruby Lines Microscope



Product Code: RLM-F02

The LOTO-eng Microscope is designed to collect the fluorescence emission of a small ruby chip placed inside the sample under pressure in the Diamond Anvil Cell (DAC). Photoexcitation is provided by a Laser source at 532 nm. A long working distance microscope, objective 20X, ensures high efficiency of fluorescence collection and good quality sample image. The fluorescence signal is sent through a dedicated optical fiber system to a compact spectrometer. The side of the microscope has an optical entrance which allows, using the same microscope objective, to enlighten the sample for the visual observation.

The ruby lines investigation employs a microscope technique requiring the addition of multiple optical instruments, like light sources for a better vision, laser device to excite the fluorescence of the ruby crystal, focusing optics and fiber optic for collection and transmission of fluorescence.

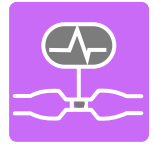
The signal is transmitted to the spectrograph through an 'Infinity optics path' that is a beam path with parallel rays between the objective and the tube lens of a microscope. Flat optical components can be brought into this infinity space without influencing image formation, which is critical for the utilization of contrast methods such as fluorescence.

TECHNICAL DATA

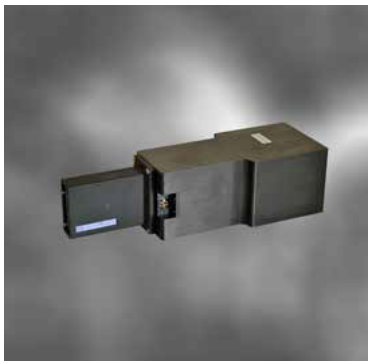
MICROSCOPE	200x Mitutoyo objective WD 20mm Horizontal/Vertical working position
EXCITATION LASER	NdYag 532 Green lines / other laser lines on request (power control by PVM)
DIGITAL CAMERAS	3MP MCOS sensor
LIGHTING	White LED (power control by PVM)
OPTICAL FIBER	50 Microns

HIGHLIGHT

- Lighting and laser control
- Optical fiber
- Flexible design adaptable in many geometry
- Camera to control sample and ruby crystal



Ruby Lines Spectrometer



Product Code: RLS-S01

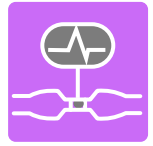
The RLS 150 is a miniature spectrometer designed for Ruby Lines Spectrometry. It can accept light transmitted by an optical fiber. A removable fiber coupler faceplate allows use of standard SMA 905, FC and custom fiber connector. A durable aluminum housing encloses the RLS 150 optical bench. G2 series of small format CCD cameras uses high sensitive, low noise on Semi Full-Frame and Interline-Transfer CCD detectors. While high-speed USB 2.0 interface allows plug-and-play operation and ensures download time within a few second. Advanced analog electronics ensures uniform frames without artifacts and very low read noise. The Spectrometer works with a dedicate microscope able to send the signal to analyze.

TECHNICAL DATA

ARRAY	MCOS Sensor, pixel 8x200 micron, 3498 Total
RESOLUTION	MAX 0,2 nm
SPECTRAL RANGE	690-740 nm
SPECTROGRAPH f/N	f/3
COMPUTER INTERFACE	USB 2.0
SOFTWARE CONTROL	Windows 2008/2010

HIGHLIGHT

- Compact and portable
- High efficiency geometry



Ruby Calibration Lamp



Product Code: RLC-0F2

The Neon Calibration Lamp is a wavelength calibration source for VIS spectrophotometric systems. The atomic emission of Neon gas appears as discrete spectral lines of defined wavelength and relative intensity, in the range 540-754 nm. Their stability makes them extremely useful for calibration, alignment and resolution testing of spectrophotometric instrumentation like our RLS-150 spectrometer. In particular, the neon lamp is useful for the calibration of the spectrometer software. Our useful wavelength range is 680-740nm. The lamp is enclosed in an aluminium housing. The neon lines are collected by an optical fiber equipped with a SMA 905 connector. The calibration of the RLS 150 spectrograph is achieved by injecting the neon emission light through a 50 um fiber optic. It is therefore possible to link pixel numbers to wavelengths (the relation is assumed linear over the range of interest).

TECHNICAL DATA

MODEL LAMP	Neon Emission Lines
WARMUP	2-4 minutes
LIFETIME LAMP	500 hours
OPTICAL FIBER	50 microns
SOFTWARE CONTROL	Windows 2008/2010

HIGHLIGHT

- Strong lines throughout VIS
- Provides highly repeatable wavelength