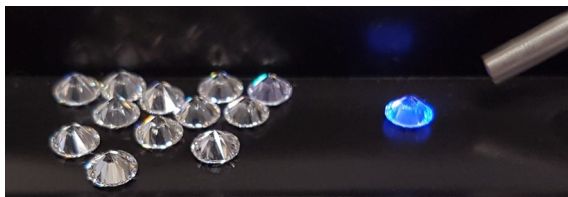




**EXA™ will report you a natural diamond whenever it sees one! Just point the tip of the probe on loose or mounted colorless diamond looking stone and you will know in less than a second if it is a natural diamond or something else**



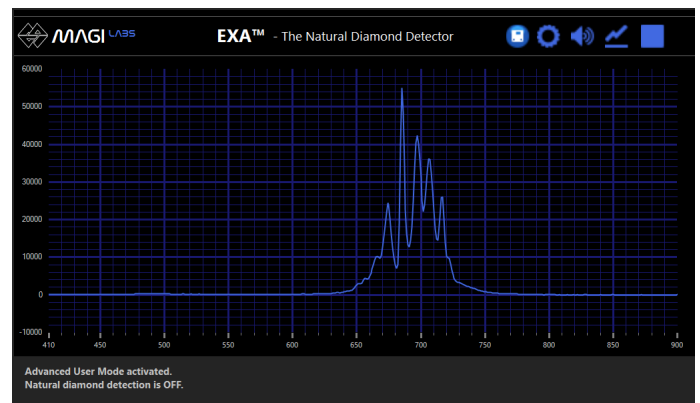
- ✓ Recognizes about 98% of natural diamonds by telling **"PASS"** .
- ✓ Refers about 2% of natural diamonds for further testing.
- ✓ Refers 100% of HPHT and CVD-grown synthetic diamonds for further testing.
- ✓ Refers 100% of diamond simulants for further testing.



EXA™ uses fluorescence spectroscopy for detecting natural diamonds. It works for loose and mounted stones starting from less than 0.005ct, there is no upper size limit. The system is a standalone desktop instrument with touch screen panel and built-in audio. No PC connection is required.

### Key Features

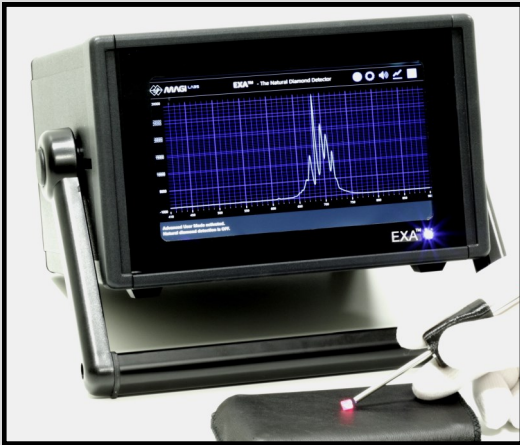
- Ocean Optics Enhanced Sensitivity spectrometer embedded
- MS Windows based built-in computer
- 7" full touch screen display
- Minimal sample preparation (cleaning) is required
- Diamond mode operates screening in 1 second
- Advanced mode features 410-900 nm fluorescence spectrum
- CNC milled stainless steel, aluminum and ABS construction
- Ocean Optics Enhanced Sensitivity spectrometer embedded
- Resolution: ~ 1.3 nm
- Range: 410 - 900 nm (pure results on the whole range)
- 2nd order filtering for spectral purity
- 16 bit A/D resolution (65000 counts)
- Spectrally filtered UV-source
- Easy to use fiber optic coaxial probe
- Option for working with diamonds in liquid nitrogen
- Small footprint suitable for desktop; 210 x 230 mm (8.2" x 9") - Weight: 4 kg
- Electrically safe 12V system supplied with laptop type transformer (12VDC 3A)
- 15-28°C operating temperature range



EXA™ can be used in advanced mode. The fluorescence spectrum of the stone can be visualized on the screen and provides crucial information for the identification of a number of diamonds and colored stones. Among them: synthetic and treated pink diamonds, tsavorite, corundum, spinel, alexandrite, tanzanite, zircon, CZ and many others. EXA™ is useful to identify oil and resin fillers in emeralds and dye in corals.

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**MAGILABS** - Postikatu 10 - 04400 Järvenpää - FINLAND

## Advanced User Mode



EXA™ can be operated in *Advanced User Mode* which allows experienced gemologist to gain a lot of useful information by looking at gem's fluorescence spectrum. This mode also allows for increasing testing time for temporary sensitivity boost.

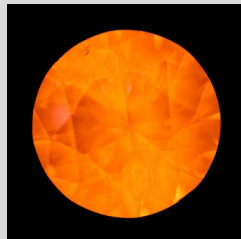
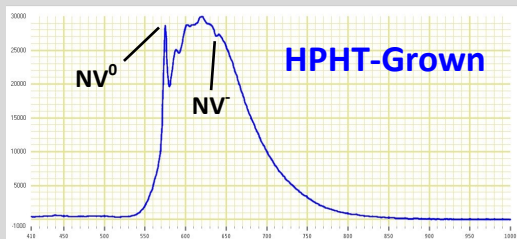
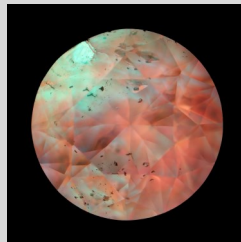
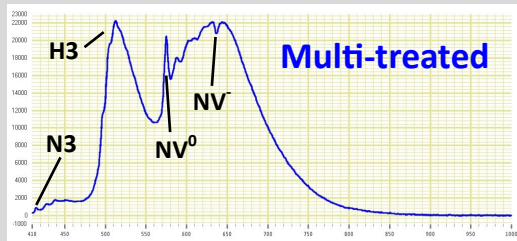
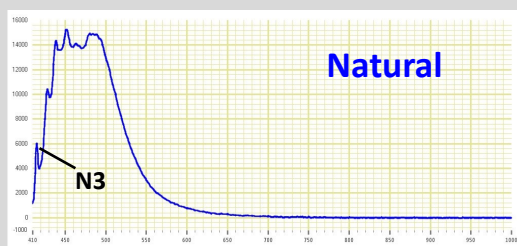
In *Advanced User Mode* EXA™ is a completely new kind of tool in the gemological laboratory; It is a strong longwave ultraviolet lamp on the tip of coaxial flexible probe, combined to a sensitive spectrometer which presents the emission spectrum of fluorescent gems on the screen.

## Pink diamonds

Natural pink diamonds belong mostly to IaAB type so they feature the same spectra as the colorless IaAB which are dominated by the N3 center and its sidebands.

Natural multi-treated pinks (HPHT + Irradiation + Annealing process) owe their color mainly to the NV<sup>0</sup>, NV<sup>-</sup> and H3 centers, in many cases the N3 feature can still be identified. Note the typical patchy color distribution in the image.

Synthetic HPHT and CVD grown diamonds show a distinct emission due to the NV<sup>0</sup> and absorption due to NV<sup>-</sup> but the N3 center is completely absent.



## Emerald fillers - Oil vs Resin

EXA™ can easily identify emeralds by their typical spectra. In the vast majority of the cases, emeralds are treated by impregnation with several types of substances. The EXA™ probe is extremely handy for the identification of filled fractures, especially in mounted stones. Oil and resin fillers feature different reaction to the UV and the relative spectra can be helpful to address which type of foreign material has been used to enhance the clarity of the stone.

