

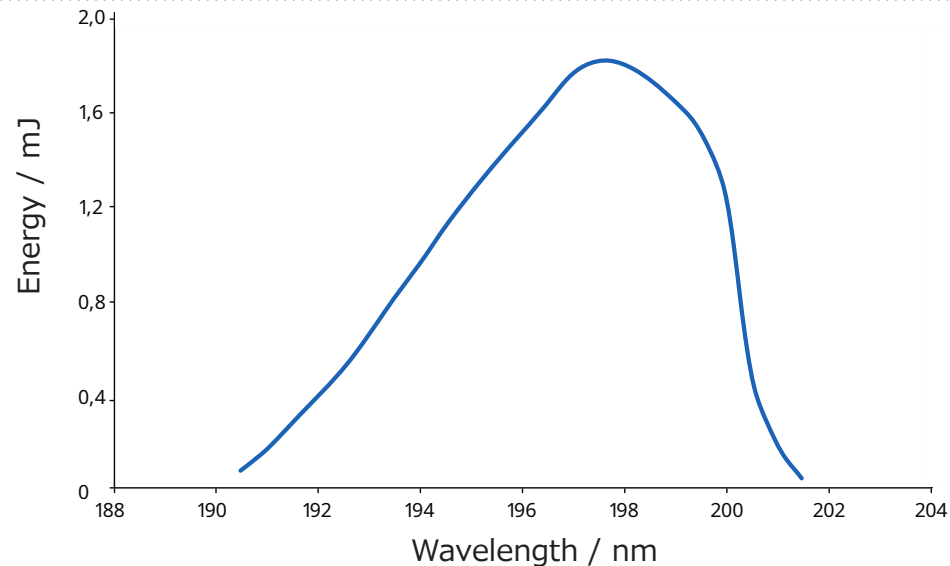
## Mixing After Doubling

The Sirah MAD-195 (mixing after doubling) is designed to generate laser radiation in the UV wavelength range from 190 nm to 202 nm. It is operated together with a Cobra-Stretch or PrecisionScan dye laser, pumped by an injection seeded Nd:YAG laser.

The dye laser is operated in the blue spectral range, from 462 nm to 490 nm.

Its output beam is first frequency doubled by a BBO crystal. Then, the resulting UV beam is sum frequency mixed with the residual fundamental Nd:YAG radiation. A set of 4 dichroic mirrors separates the generated UV beam from the two incoming beams. Additionally, the MAD-195 unit can easily be upgraded to a third harmonic generation unit (THU-205), giving access to wavelengths from 197 nm to 212 nm.

## Tuning Range



Tuning curve with Coumarin 102 dye, when pumped with 400 mJ @ 355 nm

## Energy Output

| Pump Laser      | Dye Laser          | Output Energy |
|-----------------|--------------------|---------------|
| 400 mJ @ 355 nm | PrecisionScan-G-24 | 1.5 mJ        |
| 320 mJ @ 355 nm | Cobra-Stretch-G-24 | 1.2 mJ        |

UV energy output at 196 nm. See tuning curve for energies at other wavelengths.

## General Characteristics

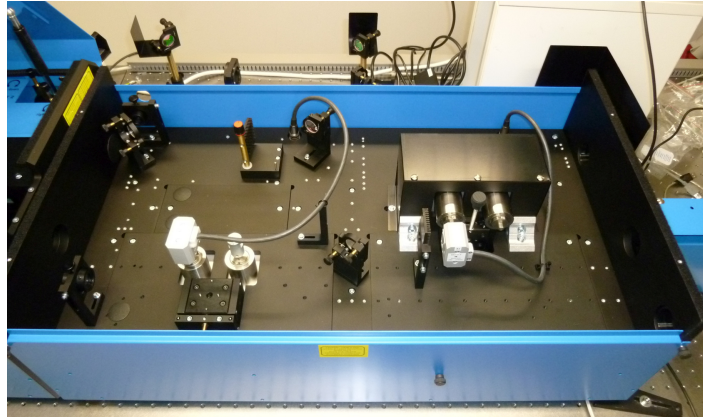
|                                    |  |
|------------------------------------|--|
| Wavelength range MAD               | 190 - 202 nm                               |
| Wavelength range SHG <sup>1)</sup> | 206 - 220 nm (SHG-206 crystal, optional)   |
|                                    | 215 - 280 nm (SHG-215 crystal, included)   |
|                                    | 250 - 380 nm (SHG-250 crystal, optional)   |
| Wavelength range THU <sup>2)</sup> | 200 - 210 nm                               |
| Maximum Pump Energy                | 350 mJ @ 355 nm                            |
|                                    | 550 mJ @ 355 nm <sup>3)</sup>              |
| Dye Laser Resonator                | 2400 lines / mm grating recommended        |
|                                    | 1800 lines / mm grating possible           |
| Dye Laser Amplifier                | Enhanced Beam Profile cell recommended     |
| Repetition Rate                    | 10 Hz recommended                          |
| UV Beam Polarization               | Vertical, >98%                             |
| UV Beam Diameter (typical)         | 3 - 6 mm, depending on amplifier cell type |
| UV Beam Divergence                 | < 0.5 mrad                                 |

<sup>1)</sup> single crystal operation, requires Pellin-Broca unit for separation

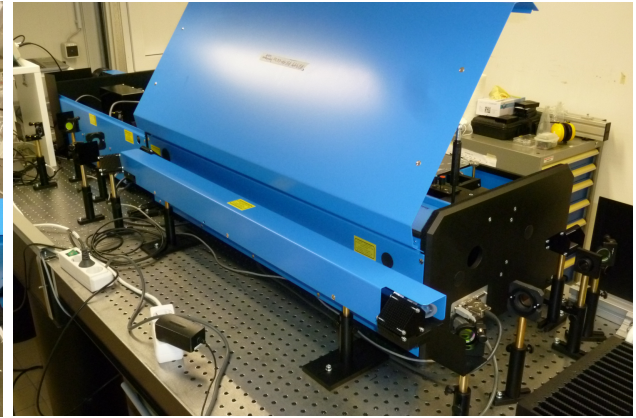
<sup>2)</sup> requires upgrade set consisting of crystals (SHG-250 and SHG-206), halfwave plate, DC-205 dichroics. Requires 2400 lines/mm grating

<sup>3)</sup> with secondary main amplifier, only possible with PrecisionScan laser

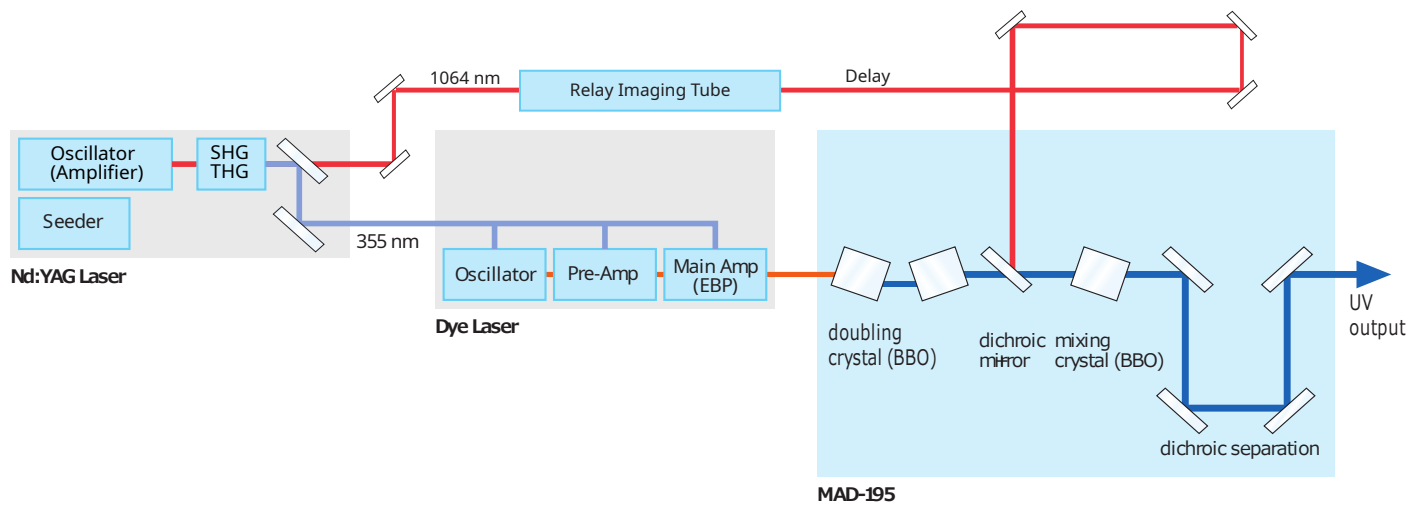
## MAD Setup



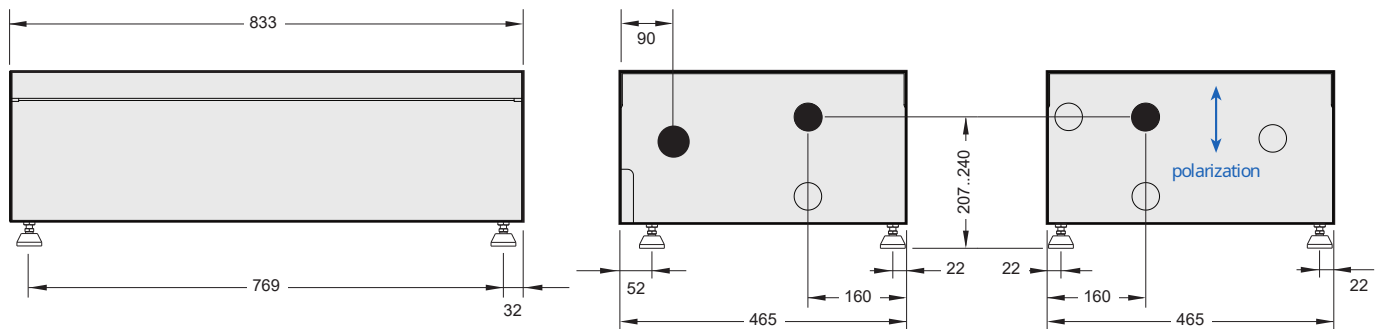
## Relay Imaging Tube



## Optical Layout



## Dimensions

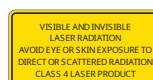


MAD-195 (side view)

MAD-195 (dye input end)

MAD-195 (UV output end)

All Dimensions in mm  
Specifications are subject to change without notice



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