

Grating Lift Dye Laser

General

The Grating Lift adds an additional grazing-incidence grating to a Sirah pulsed dye laser resonator. By using two different line densities on the gratings the laser's tuning range is extended, gaps in the tuning range caused by Wood's anomaly are closed.

Linewidth and efficiencies are optimized for specific wavelength regions.

The grating lift is compatible with long (90 mm) and short (60 mm) gratings. It fits into standard pulsed

dye laser resonators (Cobra-Stretch, PrecisionScan) and high-repetition-rate resonators (Credo Dye) as well.

The precision mechanics result in identical specifications for absolute wavelength accuracy, stability and resetability as for the standard resonators.

Operation

The two grazing incidence gratings are mounted on top of each other on a motor driven sliding stage. The motor can slide one of the two gratings into the resonator for operation. The new configuration is immediately operational. The laser control program detects the new grating and matching calibration

parameters are used automatically.

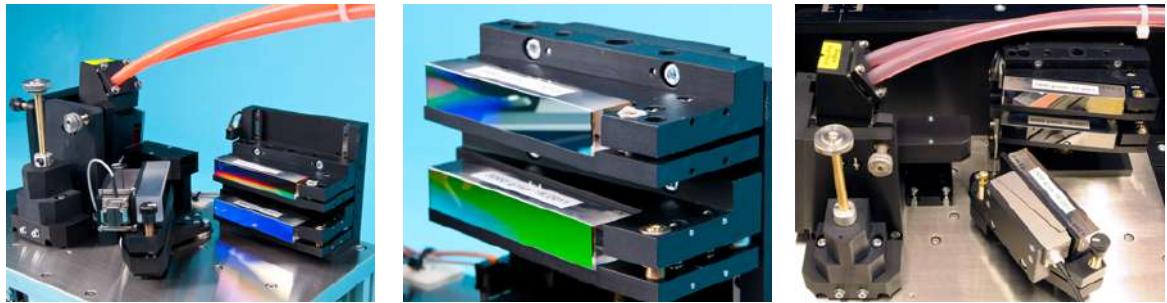
The grating lift motor is controlled by the Sirah Control software as well as by the handheld remote.

Characteristics

Absolute Wavelength Accuracy	< 20 pm
Wavelength Resetability	< 4 pm
Wavelength Stability	< 2 pm / °C

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Grating Lift



Grating Selection

Any two grazing incidence gratings with equal length may be combined on the grating lift.

Grazing Incidence Grating	Littrow Grating	Tuning Range	Linewidth	
1800 l/mm, 60 mm	Mirror	400 nm .. 920 nm	3.6 μm^{1}	0.10 cm^{-1} @ 625 nm
1800 l/mm, 90 mm	Mirror	400 nm .. 920 nm	2.5 μm^{1}	0.07 cm^{-1} @ 625 nm
1800 l/mm, 90 mm	1800 l/mm, 90 mm	410 nm .. 900 nm	1.7 μm^{1}	0.05 cm^{-1} @ 625 nm
1800 l/mm, 90 mm	2400 l/mm, 90 mm	410 nm .. 810 nm	1.45 μm^{1}	0.04 cm^{-1} @ 600 nm
1800 l/mm, 90 mm	3000 l/mm, 90 mm	410 nm .. 660 nm	1.3 μm^{1}	0.05 cm^{-1} @ 570 nm
2400 l/mm, 60 mm	Mirror	370 nm .. 760 nm	2.7 μm^{1}	0.08 cm^{-1} @ 570 nm
2400 l/mm, 90 mm	Mirror	370 nm .. 760 nm	1.8 μm^{1}	0.06 cm^{-1} @ 570 nm
2400 l/mm, 90 mm	1800 l/mm, 90 mm	370 nm .. 740 nm	1.3 μm^{1}	0.05 cm^{-1} @ 530 nm
2400 l/mm, 90 mm	2400 l/mm, 90 mm	370 nm .. 710 nm	1.2 μm^{1}	0.04 cm^{-1} @ 530 nm
2400 l/mm, 90 mm	3000 l/mm, 90 mm	370 nm .. 640 nm	1.15 μm^{1}	0.04 cm^{-1} @ 530 nm
3000 l/mm, 60 mm	Mirror	370 nm .. 620 nm	2.0 μm^{1}	0.06 cm^{-1} @ 570 nm
3000 l/mm, 90 mm	Mirror	370 nm .. 620 nm	1.4 μm^{1}	0.05 cm^{-1} @ 570 nm
3000 l/mm, 90 mm	1800 l/mm, 90 mm	370 nm .. 610 nm	1.3 μm^{1}	0.045 cm^{-1} @ 530 nm
3000 l/mm, 90 mm	2400 l/mm, 90 mm	370 nm .. 610 nm	1.25 μm^{1}	0.05 cm^{-1} @ 500 nm
3000 l/mm, 90 mm	3000 l/mm, 90 mm	370 nm .. 580 nm	1.0 μm^{1}	0.04 cm^{-1} @ 500 nm

¹⁾ value for 450 nm

Specifications are subject to change without notice

German Patent
U.S. Patent

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