

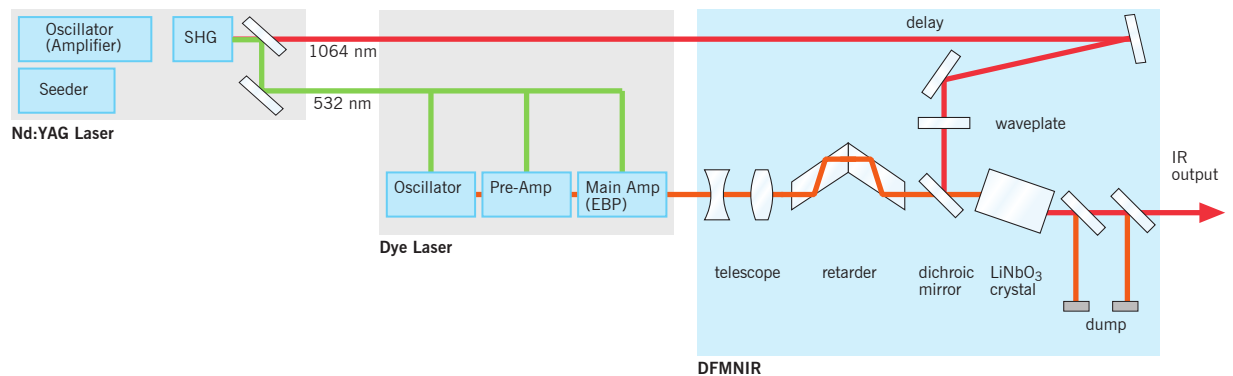
# Infra-Red Generation

## Principles

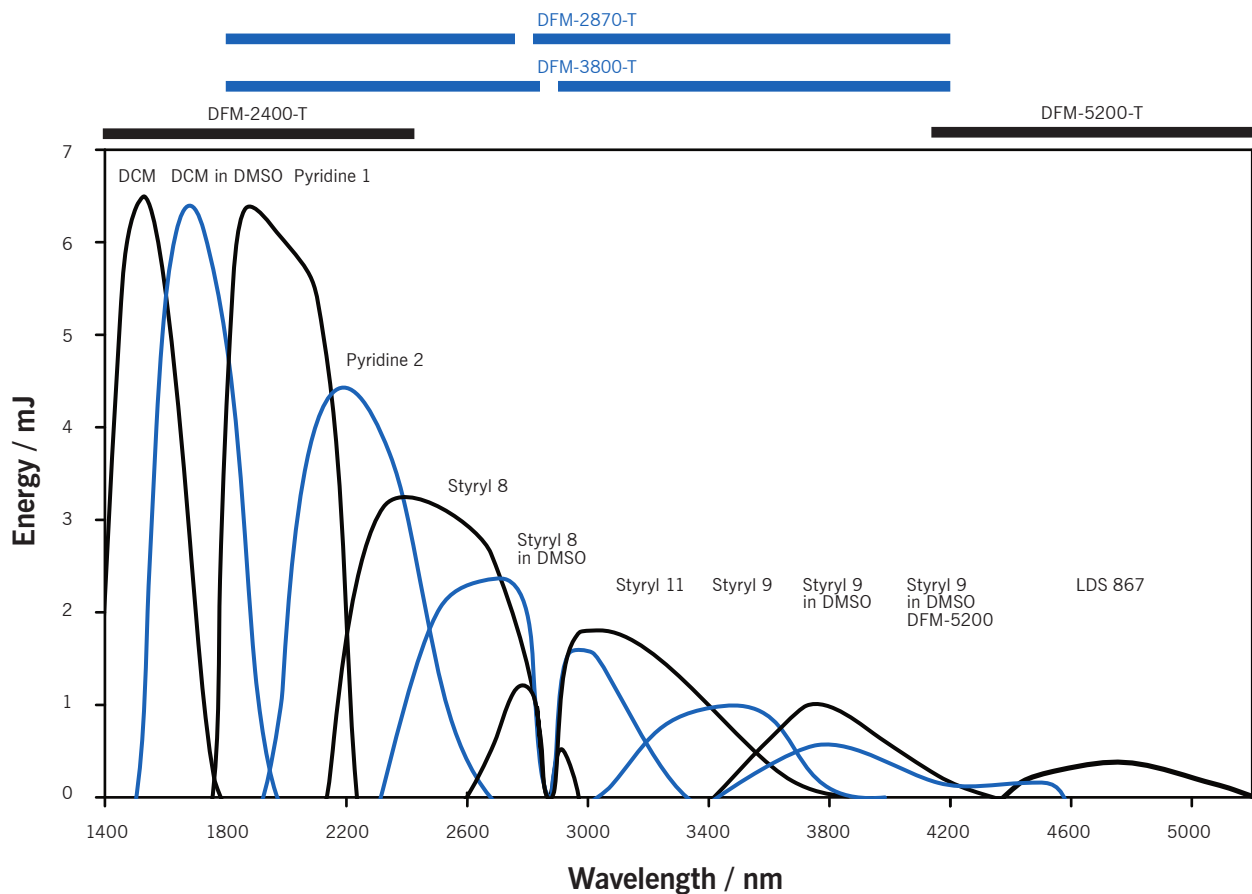
A frequency doubled, injection seeded Nd:YAG laser is used to pump the dye laser, operated in the red spectral region. The dye laser output beam and the residual 1064 nm pulse from the Nd:YAG are mixed in a temperature stabilized LiNbO<sub>3</sub> crystal for

difference frequency generation. A set of dichroic mirrors separates the generated IR pulse from the two incoming beams. Due to injection seeding, the resulting bandwidth is governed by the configuration of the dye laser resonator.

## Optical Layout



## Tuning Range



Tuning curves for mixing with approximately 500 mJ @ 532 nm; gap characteristics shown for DFM-3800-T

## Energy Output

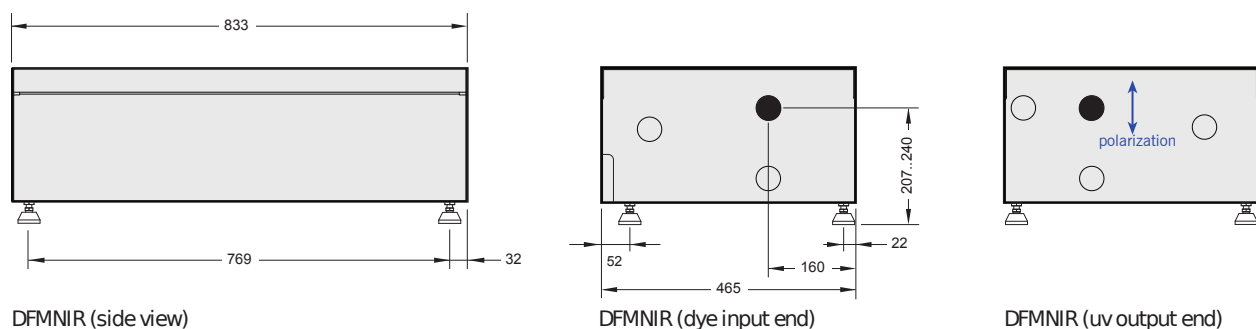
Pump Laser	Dye Laser	Output Energy
500 mJ @ 532 nm	Cobra-Stretch LG-18	6.0 mJ
500 mJ @ 532 nm	Cobra-Stretch D-18	5.7 mJ
430 mJ @ 532 nm	Cobra-Stretch LG-18	5.1 mJ
430 mJ @ 532 nm	Cobra-Stretch D-18	4.8 mJ
380 mJ @ 532 nm	Cobra-Stretch LG-18	4.6 mJ
380 mJ @ 532 nm	Cobra-Stretch D-18	4.4 mJ

IR energy output at 2  $\mu\text{m}$  (maximum Pyridine 1). See tuning curves for output energies at other wavelengths. Values for injection seeded pump laser.

## General Characteristics

Maximum Pump Energy	500 mJ @ 532 nm
Seeder for Nd:YAG Laser	Imperative
Dye Laser Amplifier	Necessary, Enhanced Beam Profile Cell recommended
Crystal Tuning Mode	Look-Up Table
IR Beam Polarization	vertical, > 98%
IR Beam Diameter (typical)	3 - 6 mm, depending on amplifier cell type
IR Beam Divergence	< 0.5 mrad
IR Bandwidth	< 1.1 x Dye Laser Bandwidth
Tuning Range	DFM-2400-T 1.5 - 2.4 $\mu\text{m}$ DFM-2870-T 1.8 - 4.2 $\mu\text{m}$ gap at 2830 nm DFM-3800-T 1.8 - 4.2 $\mu\text{m}$ gap at 2870 nm DFM-5200-T 4 - 5.2 $\mu\text{m}$

## Dimensions



All Dimensions in mm  
Specifications are subject to change without notice



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Heinrich-Hertz-Straße 11  
D-41516 Grevenbroich

phone +49 21 82.82 98 18-0  
fax +49 21 82.82 98 18-40