

# Emerald Engine

The APE *pico*Emerald™ series of optical parametric oscillators (OPOs) was developed to provide an optimized pulsed laser source for everyday use in ps Coherent Raman measurements, video rate SRS imaging and other applications.

Now the Emerald Engine extends the popular Levante Emerald series by providing a separate IR fiber based pump laser with a pulse width of only 2 ps. The pump laser comes with a frequency doubling unit included, resulting in two beams: a frequency doubled output @ 516 nm and output power > 3 W and the undepleted fundamental output @ 1032 nm with output power > 0.75 W. Both beams are intrinsically synchronized and jitter-free (Emerald Engine - Basic- Duo).

For applications that require a higher output power the Emerald Engine HP is available with an output power of > 6 W for the frequency doubled output and > 3 W for the undepleted fundamental output (Emerald Engine HP - Basic- Duo).

If the undepleted fundamental beam is not needed, the Emerald Engine - Green longpulse is available with a frequency doubled output @ 516 nm and output power of > 4 W at a pulse duration of approx. 5 ps.

- IR fiber laser with frequency doubling unit
- Offers pulses as short as 2 ps with a spectral width of only  $10 \text{ cm}^{-1}$
- Laser repetition rate stabilized by cooled base plate
- Windows based Control software included
- Sync-Out signal



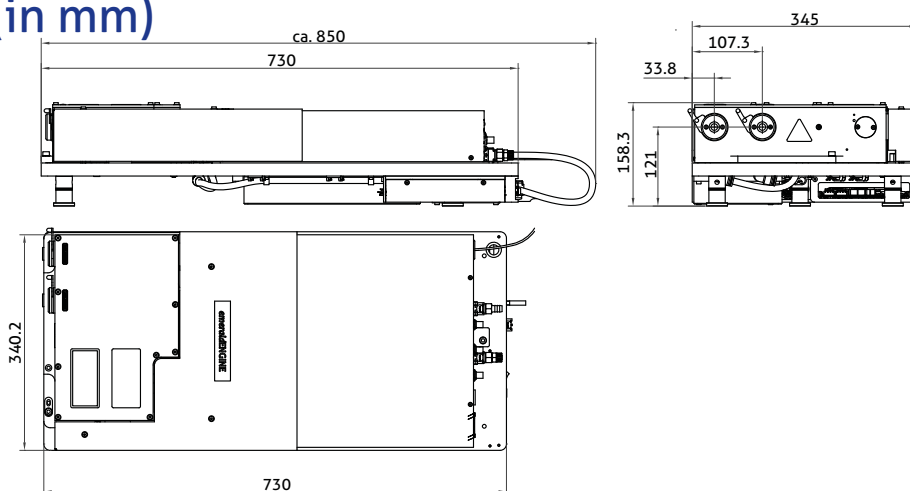
## Specifications

Versions	Basic Duo	MP-Basic Duo	HP-Basic Duo	HP-Basic Duo longpulse
Repetition rate	80 MHz $\pm$ 0.15 MHz			
Frequency doubled output				
Wavelength	516 nm $\pm$ 0.75 nm			
Pulse width	$\leq$ 2.5 ps	$\leq$ 2.5 ps	$\leq$ 2.5 ps	approx. 5.5 ps
Output power	$>$ 3 W	$>$ 4 W	$>$ 6 W	approx. 7 W
Polarization	vertical			
Undepleted fundamental output				
Wavelength	1032 $\pm$ 1.5 nm			
Pulse width	$\leq$ 2.5 ps	$\leq$ 2.5 ps	$\leq$ 2.5 ps	approx. 5.5 ps
Output power	$>$ 0.75 W	$>$ 1 W	$>$ 1.5 W	approx. 2 W
Spectral width	approx. 1 nm			
Polarization	horizontal			

Versions	Basic Green longpulse	HP-Basic Green longpulse
Repetition rate	80 MHz $\pm$ 0.15 MHz	
Frequency doubled output		
Wavelength	516 nm $\pm$ 0.75 nm	
Pulse width	approx. 5 ps	approx. 5 ps
Output power	$>$ 4 W	$>$ 8 W
Polarization	vertical	

The Emerald Engine can be used for pumping an OPO, e.g. by upgrading an existing Levante Emerald OPO or with other laser systems which need synchronous pumping.

## Dimensions (in mm)



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