

# efficient.

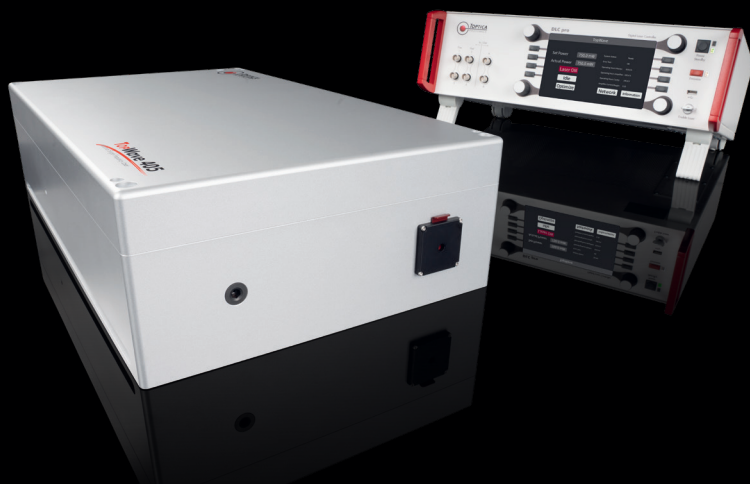


Simple replacement of Kr+ gas laser

## TopWave 405 – 1 Watt @ 405 nm

High coherence diode laser for lithography and holography

- Low cost of operation
- Perfect fit for lithography and holography applications
  - 1 Watt @ 405 nm
  - Excellent  $M^2 = 1.15$  (typ.)
  - Coherence Length > 100 m



Contact our experts for  
discussing the integration  
in your setup



[www.toptica.com/efficient](http://www.toptica.com/efficient)

# TopWave 405



Class 4 Laser Product EN 60825-1:2014.  
Visible or invisible laser radiation. Avoid direct exposure to beam. WARNING — Class 4: DANGER — visible or invisible laser radiation when open. Avoid exposure to the beam.

Specifications	TopWave 405
Wavelength	405 ± 0.5 nm
Linewidth (@ 5 us)	< 1 MHz
Coherence length	> 100 m
Output Power	1 W
Beam Waist Diameter	1.5 ± 0.2 mm
Beam Waist location	Front bezel ± 25% of Rayleigh range
Transverse Mode	TEM <sub>00</sub>
M <sup>2</sup> typ. (max.)	1.15 (≤ 1.3)
Beam Divergence (full-angle)	≤ 0.6 mrad
Beam Ellipticity	0.9 - 1.1
Astigmatism	± 25% of Rayleigh range
Beam Pointing Stability <sup>1</sup>	≤ 5 μrad
Polarization	linear, vertical, ± 3°, > 100:1
Output Power Stability (over 8h)	≤ 1 %
RMS Noise (10 Hz - 10 MHz)	≤ 0.6 %
Warm-Up Time	
Cold Start	< 2 h
From Standby	< 15 min
Lifetime	> 5000 h
Utility and Environmental Requirements	
Laser Head	
Dimensions (H x W x D)	127 x 295 x 500 mm
Weight	22 kg
Cooling	Conduction <sup>2</sup>
Umbilical Length	2 m
Control Unit	
Dimensions (H x W x D)	154 x 450 x 348 mm
Weight	9 kg
Cooling	Convection
Operating Temperature Range	20 to 30 °C, stabilized to ± 1 °C, non-condensing
Shipping Requirements	-10 to +50 °C, shipping in a non-condensing environment
Power Supply	AC 100-240 V, 50/60 Hz
Power Consumption	< 100 W
Communication Interface	Ethernet, USB
<sup>1</sup> Ambient temperature drift less than ± 1 K <sup>2</sup> Sufficient heat sink has to be provided. Optional cooling plate with closed loop chiller available	