# efficient.

Simple replacement of Kr+ gas lasers

## TopWave 405 – 2 Watt @ 405 nm

High coherence diode laser for
lithography and holography

- 2 Watt @ 405 nm
- Low cost of operation
- Excellent beam quality, typical $M^2$ = 1.15
- Coherence length > 100 m

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# TopWave 405

DANGER – VISIBLE AND INVISIBLE LASER RADIATION, AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION, CLASS 4 LASER PRODUCT, EN60825-1:2014

| Specifications | | TopWave 405 | TopWave 405 XP |
|---|---|---|---|
| Wavelength | | 405 ± 0.5 nm | |
| Linewidth | | < 1 MHz | |
| Coherence length | | > 100 m | |
| Output power | | 1000 mW | 2000 mW |
| Beam waist diameter | | 1.5 ± 0.2 mm | |
| Beam waist location | | Front bezel ± 25% of Rayleigh range | |
| Transverse mode | | $TEM_{00}$ | |
| $M^2$ | | 1.15 / 1.3 (typ. / max) | |
| Beam divergence (full-angle) | | < 0.6 mrad | |
| Beam ellipticity | | 0.9 - 1.1 | |
| Astigmatism | | ± 0.25 zR | |
| Beam pointing stability* | | ≤ 5 µrad | |
| Polarization | | linear, vertical, ± 3°, > 100:1 | |
| Power stability (RMS over 8h) | | < 1 % | |
| RMS noise (10 Hz - 10 MHz) | | ≤ 0.6 % | |
| Warm-up time | Cold start | < 2 h | < 3 h |
| | From standby | < 15 min | |
| Lifetime (min. / typ.) | | 5000 h / 10000 h | |
| **Utility and Environmental Requirements** | | | |
| Laser head | Dimensions (L x W x D) | 500 x 295 x 127 $mm^3$ | 525 x 295 x 127 $mm^3$ |
| | Weight | 21.9 kg | 22.6 kg |
| | Cooling | Conduction** | |
| Umbilical length | | 2 m | |
| Control unit | Dimensions (H x W x D) | 448 x 378 x 154 $mm^3$ | |
| | Weight | 10.5 kg | 11.7 kg |
| | Cooling | Convection | |
| Operating temperature range | | 20 to 30 °C | |
| Shipping requirements | | -10 to +50 °C | |
| Input voltage | | 100 - 240 V AC, 50/60 Hz | |
| Power consumption | | < 100 W (typ. 75) | < 200 W (typ. 150) |
| Communication interface | | Ethernet, USB | |

* RMS over 8h @ ambient temperature drift less than ± 1 K
** Sufficient heat sink has to be provided.