



PHOTONICS SOLUTIONS
LASERS & DETECTORS covering UV to IR

PRECISELY DESIGNED FOR YOU
and tailored to your application to be successful

Drop-in Replacement of Air-Cooled Argon Lasers with PIC Solid-State Laser

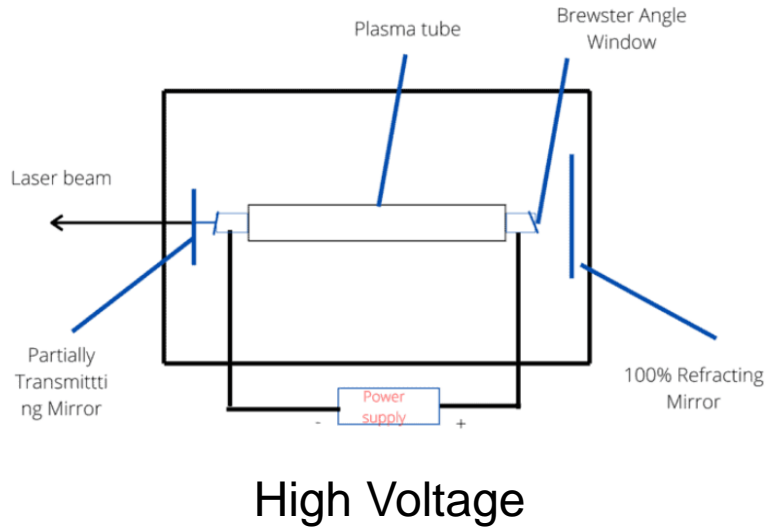


Introduction

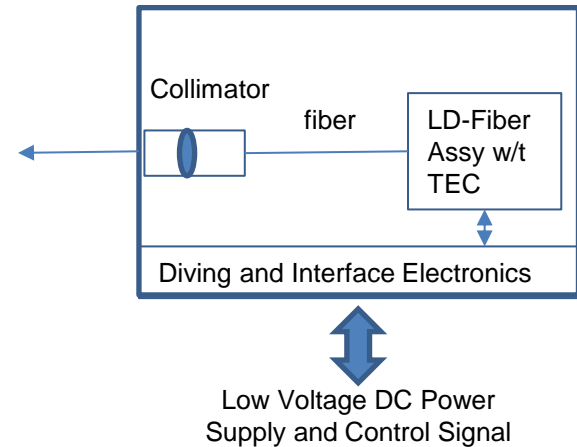
- **Shortages of Traditional Argon lasers besides the perfect beam quality**
 - Bulky
 - Sensitive to back reflection
 - Fixed output power
 - Short lifetime (3,000-5,000 hrs)
 - High power consumption
- **Benefits to use PIC Argonaut[®] Lasers (fiber collimated diode lasers with perfect beam quality) to replace Argon lasers**
 - Compact sizes or direct replacement with the same sizes
 - Insensitive to back-reflection
 - Independent adjustable output power and fast on-off control power control
 - Lower noises
 - Longer lifetime (>20,000 hrs)
 - Same or better optical beam performance
 - Competitive pricing
 - Much less cost for services

Structure Comparison

Typical Argon Laser Structure



PIC Argonaut Laser Structure – PM fiber based



PIC Argonaut Lasers - Rectangular Package Version

Legacy Air-Cooled Argon-Ion laser head



PIC's Drop-In Argonaut laser head for Argon laser replacement





Performance Comparison of Argon Lasers vs PIC Argonaut Lasers (Rectangular Version)

	Argon Laser	WTB488-15	WTB514-25	WTB505-25	Dual WTB488/514
Output Power	25mW	15mW (75mW)	25mW (45mW)	25mW (35mW)	15/25mW
Beam Diameter	0.69mm ± 5%	0.69mm ± 5%	0.69mm ± 5%	0.69mm ± 5%	0.69mm ± 5%
Beam Divergence	0.95mrad	0.95mrad	0.95mrad	0.95mrad	0.95mrad
Wavelength	458-514nm	488nm	505nm	505nm	488/505nm
Maximum Drift (light control mode over 2 hours)	<2.0%	<0.5%	<0.5%	<0.5%	<0.5%
Required Minimum Air Flow Cooling	115cfm	No fan	No fan	No fan	No fans
Expected Lifetime	<5.000	>20.000	>20,000	>20,000	>20,000
Electrical Power Consumption	up to 1.600W	24W	24W	24W	48W

PIC Argonaut Lasers - Cylindrical Package Version

Air-Cooled Argon laser head



PIC WTB488-30SLT laser head



Same mechanical/electrical/optical specification, no difference in installation and tool calibration!



Cylindrical Performance

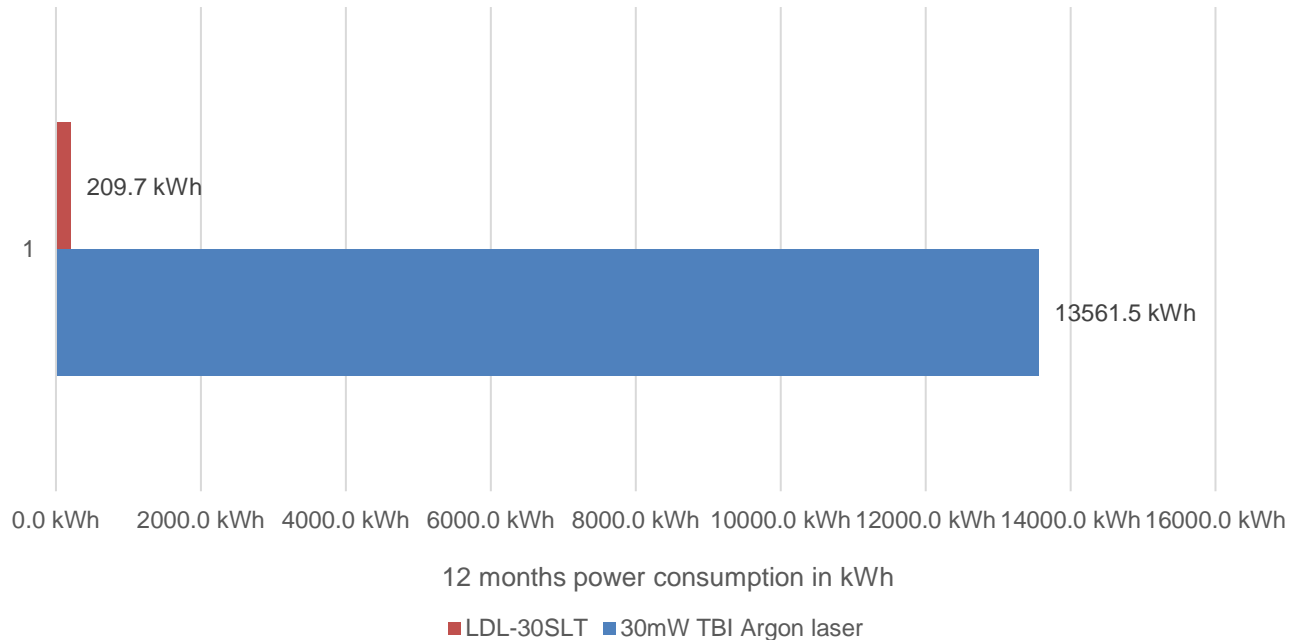
Argon Ion vs Solid-State Comparison

	Argon-Ion Laser	WTB488-30SLT
Output Power	30mW	30mW
Beam Diameter	0,69mm ± 5%	0,69mm ± 5%
Beam Divergence	0,95mrad	0,95mrad
Wavelength	488nm	488nm
Maximum Drift (light control mode over 2 hours)	<2.0%	<0.5%
Required Minimum Air Flow Cooling	115cfm	<50cfm
Expected Lifetime	<5,000	>20,000
Electrical Power Consumption	up to 1.600W	24W



Argon vs Solid-State Power Consumption Comparison

Power consumption during 12 months of 24/7 usage



Usually the Argon laser initial power consumption will start with about 30mW@7,40Amp tube current at 100% of tool power. During the usage, the aging process of the laser tube will cause a steady current increase till end of lifetime at 11.8Amp of tube current, which is limited by the power supply. The graph uses only the initial current condition, during 12 months of 24/7 usage. So, the real power consumption will be higher.

The Upgrade laser uses an more efficiencies technology. Here consumption will increase much less than with the Argon laser. So the power saving will be more than 65 times.



Power Consumption Comparison

- **Estimated for 1 year, full operation**
- **Power consumption of A Typical Argon Laser**
 - **14,000 kWh**
- **A PIC Argonaut[®] Laser**
 - **< 210 kWh**



Contact Information

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