

firestar-V

- 20, 30 & 40W models
- Short cavity design
- Near-perfect beam quality
- Excellent power stability
- Fast rise/fall times



firestar V-series - the ultimate low power laser

For the *firestar v-series*, Synrad's goal is to produce the highest quality low power CO₂ lasers, in the most compact package possible.

Based on a waveguide design, Synrad's *v-series* resonator technology guarantees a circular beam (typical $M^2 < 1.1$) in both the near field and far field. This near-perfect beam can be focused to the smallest achievable spot size, thereby creating the maximum possible power density on a worksurface. This results in faster processing speeds and higher resolution for cutting or engraving applications.

The resonator design features a small diameter bore and high gas fill pressure for fast rise/fall times (typically 80-90 μ sec), while the large gas ballast ensures the long operating lifetime expected of all Synrad lasers. Long term power stability of better than $\pm 3\%$ is typical.

As with all Synrad lasers, the *v-series* can be operated from 0 - 100% duty cycle, with laser power adjusted using a pulse width modulation (PWM) control,

and operate from standard 30VDC power supplies.

Designed for ease-of-integration, all *firestar* lasers incorporate a unique 3-point mounting system, which provides a variety of mounting options. *Firestar v-series* and *t-series* lasers share common beam exits, ensuring drop-in replaceability. Other features designed to make integration as simple as possible include:

- Onboard tickle generator
- Industry standard 5-24VDC I/O ports
- Remote control/status via 15-pin D connector

Synrad's *firestar v20* and *v40* come in keyswitch and OEM configurations, and air-cooled models can be supplied with or without fans. The newest addition to the *v-series*, the *v30* is available as an OEM, air-cooled model only. The outstanding performance of these lasers, combined with their compact size and air-cooled operation, make them the ideal source for high-performance laser engravers and high speed marking systems.



• Specifications

Model	v20	v20W	v30**	v40	v40W
Output Power	20W		30W	40W	
Mode Quality	TEM ₀₀ , 95% Purity M ² =1.1 ±0.1		TEM ₀₀ , 95% Purity M ² =1.1 ±0.1	TEM ₀₀ , 95% Purity M ² =1.1 ±0.1	
Ellipticity	<1.2		<1.2	<1.2	
Rise Time	<100µsec		<100µsec	<100µsec	
Beam Diameter	2.5mm ± 0.5mm		2.5mm ± 0.5mm	2.5mm ± 0.5mm	
Beam Divergence (full angle)	<7.0mR		<7.0mR	<7.0mR	
Wavelength	10.57-10.63µm*		10.57-10.63µm*	10.57-10.63µm*	
Power Stability, from cold start (guaranteed) after 2 minutes (typical)	±5% ±3%		±5% ±3%	±5% ±3%	
Polarization	Linear (Horizontal)		Linear (Horizontal)	Linear (Horizontal)	
Cooling	Air	Water	Air	Air	Water
Heat Load (max)	350W		550W	700W	
Flow Rate, Air	130 CFM x 2	N/A	140 CFM x 2	140 CFM x 2	N/A
Flow Rate, Water (18-22°C)	N/A	1.0 GPM, <60 PSI	N/A	N/A	1.0 GPM, <60 PSI
Input Voltage / Current	30 VDC / 12A		30 VDC / 18A 28A peak for 1ms min.	30 VDC / 24A	
Dimensions (in)	15.2 x 4.6 x 5.8		16.8 x 4.6 x 5.8	22.8 x 4.6 x 5.8	
(mm)	386 x 117 x 1456		428 x 117 x 146	579 x 117 x 146	
Weight	16 lbs / 7.3 kg	16 lbs / 7.3 kg	18 lbs / 8.2 kg	23 lbs / 10.4 kg	24 lbs / 10.9 kg

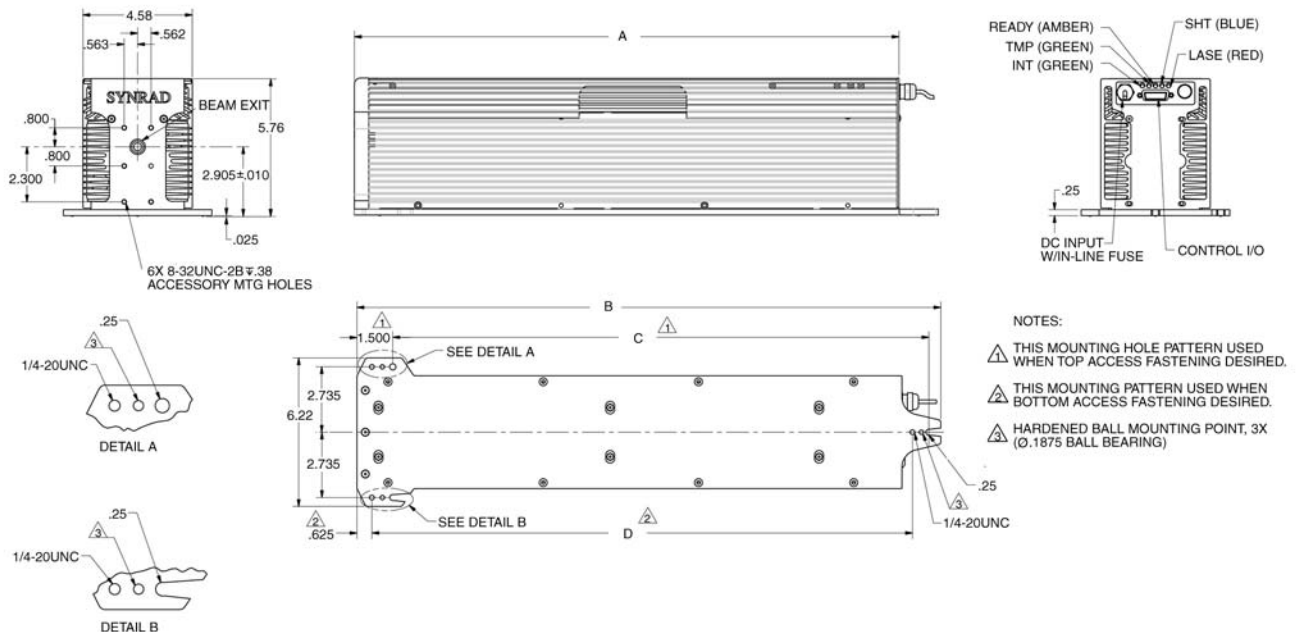
Beam specifications measured at 1/e².

*Typical. Actual wavelength range may vary from 10.2-10.8µm.
Specifications subject to change without notice.

Class 4 Laser Product.

**OEM, air cooled only

• V20/V30**/V40 Outline & Mounting



	DIM A	DIM B	DIM C	DIM D
v20	15.18	16.83	14.825	15.013
v30**	16.83	16.83	N/A	15.013
v40	22.80	24.45	22.445	22.633

**v30 diagram not shown. Please contact us for details

