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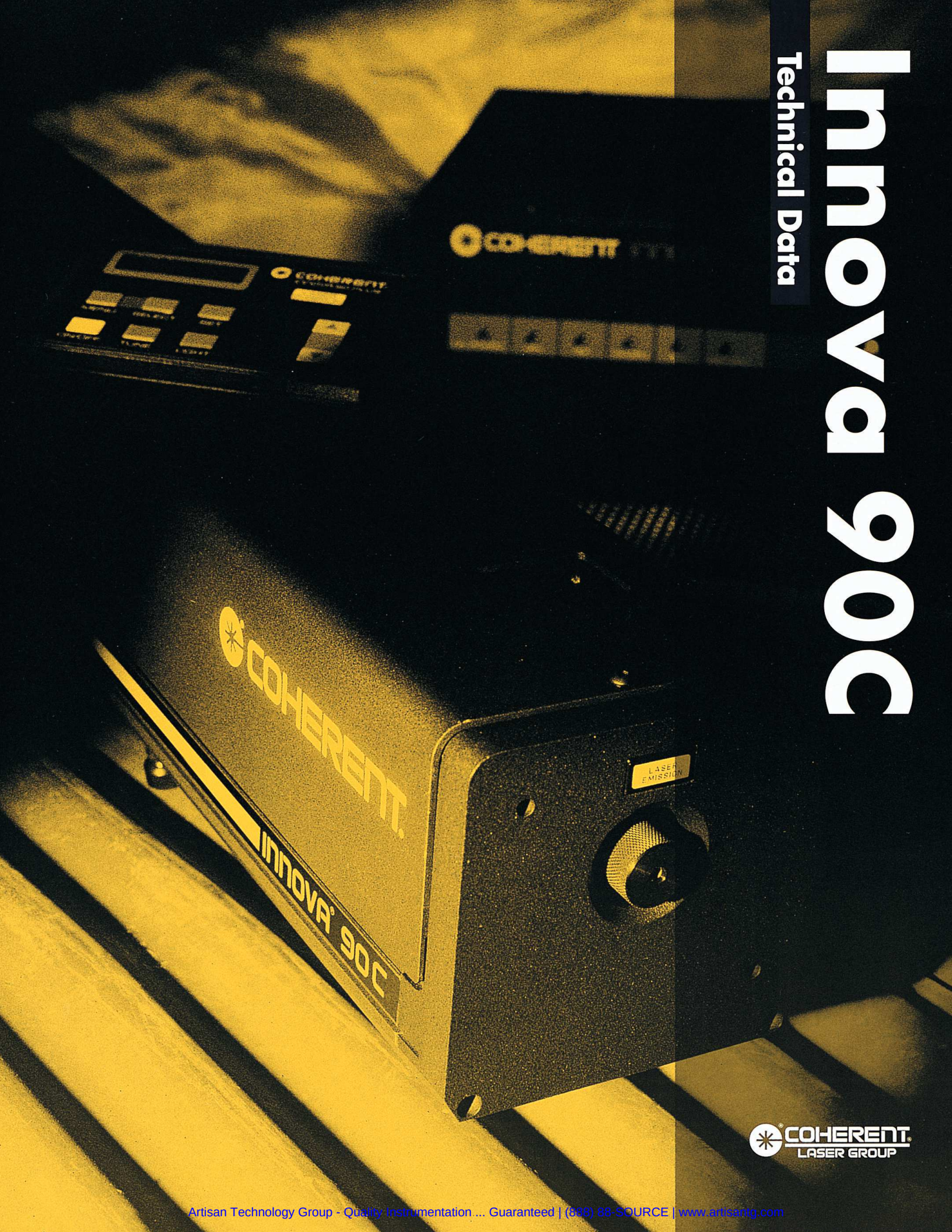
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Find the *Coherent Innova 90C* at our website: *Click HERE*

Innova 90C

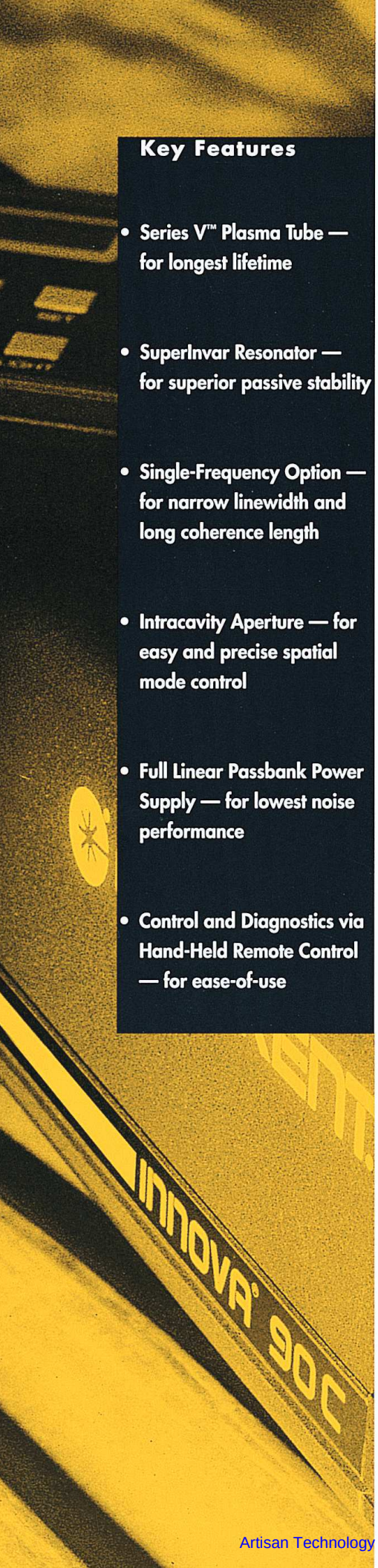
Technical Data



COHERENT
LASER GROUP

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Innova 90



Key Features

- **Series V™ Plasma Tube — for longest lifetime**
- **SuperInvar Resonator — for superior passive stability**
- **Single-Frequency Option — for narrow linewidth and long coherence length**
- **Intracavity Aperture — for easy and precise spatial mode control**
- **Full Linear Passbank Power Supply — for lowest noise performance**
- **Control and Diagnostics via Hand-Held Remote Control — for ease-of-use**

High-Level Performance

The Innova® 90C is an updated and improved version of the Innova 90. It provides high levels of performance, long-term reliability, multiple operating configurations, and is easy to use. It is an excellent choice for the scientist looking for a flexible and broadly applicable high-power source of laser light in the visible and ultraviolet spectral regions.

Series V Plasma Tube for Exceptional Lifetime

All Innova 90C lasers incorporate Coherent's Series V metal/ceramic plasma tube. With many thousands in operation, the metal/ceramic plasma tube is now the accepted standard for high power and stability, while simultaneously delivering the best available plasma tube lifetimes. The new Series V tube is Coherent's latest version of metal/ceramic technology, which offers many improvements, primarily in gas-flow dynamics, to further extend the tube's lifetime and performance.

Highly Stable Resonator

The overall stability of an ion laser system depends primarily on a properly designed and implemented resonator. The Innova 90C SuperInvar resonator structure provides exceptional stability, resistance to ambient thermal effects, and mechanical rigidity. The high thermal mass and high mechanical mass of the resonator, in combination with its kinematic mounting design, reduce the effects of environmental changes to a minimum. Thermal compensation of the wavelength selector further ensures long-term stable performance in single-line operation.

Stable Single-Frequency Operation

For stable single-frequency performance, the Innova 90C uses a solid, temperature-stabilized etalon to ensure excellent frequency stability. Together with the SuperInvar resonator structure, the temperature-stabilized etalon allows independent adjustment of the tilt angle and the etalon transmission peak. This design, which results in high conversion efficiencies for both low-gain and high-gain lines, provides high output power with excellent frequency stability.

Low-Noise Power Supply

The Innova 90C power supply is a fully regulated series passbank design, with proven performance in the millions of hours. This design provides the lowest noise operation available —0.2% rms—in either light or current regulation mode.

Customer Support Completes the Product

Coherent's customer support goes beyond delivering an excellent product. All Innova 90C Systems include an 18-month/2000-hour limited warranty covering both parts and repair labor. After standard warranty expiration, a variety of continuing service agreements can be used to maintain warranty coverage, if desired.

To assure that our products and services are easy to use, we provide over-the-phone technical support, on-site service, and guaranteed shipment of parts, including replacement tubes, within 48 hours of receipt of your order.

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Power Specifications[1]

Model	90C-A3	90C-A4	90C-A5	90C-A6	90C-K
Wavelength (nm)					
Multiline Visible	**3.0**	**4.0**	**5.0**	**6.0**	—
Multiline Red	—	—	—	—	**0.75**
1090.0	0.03	0.04	0.05	0.07	—
793.1 - 799.3	—	—	—	—	0.03
752.5 - 799.3	—	—	—	—	0.25
752.5	—	—	—	—	0.10
676.4	—	—	—	—	**0.12**
647.1	—	—	—	—	**0.60**
568.2	—	—	—	—	0.15
530.9	—	—	—	—	0.20
528.7	0.25	0.30	0.35	0.42	—
520.8	—	—	—	—	0.07
514.5	**1.40**	**1.70**	**2.00**	**2.40**	—
501.7	0.20	0.30	0.40	0.48	—
496.5	0.40	0.50	0.60	0.72	—
488.0	**1.00**	**1.30**	**1.50**	**1.80**	—
482.5	—	—	—	—	0.03
476.5	0.40	0.50	0.60	0.72	—
476.2	—	—	—	—	0.05
472.7	0.06	0.12	0.20	0.24	—
465.8	0.05	0.10	0.15	0.18	—
457.9	0.20	0.30	0.35	0.42	—
454.5	—	0.05	0.12	0.14	—
406.7 - 415.4	—	—	—	—	0.15
337.5 - 356.4	—	—	—	—	0.15
333.6 - 363.8	—	0.20	0.30	0.50	—

Beam Specifications[2]

	Argon	Krypton
Beam Diameter (@ $1/e^2$ points)[3]	1.5 mm	1.5 mm
Beam Divergence (full angle)	0.5 mrad	0.8 mrad
Beam Waist Diameter[4]	1.4 mm	1.1 mm
Beam Waist Location[4]	1.50 m	1.27 m
Cavity Length		
Single-line	1.16 m	1.16 m
Multiline	1.14 m	1.14 m
Long-Term Power Stability[5]		
Light Regulation	±0.5%	±0.5%
Current Regulation	±3.0%	±3.0%
Optical Noise (rms)[6]		
Light Regulation	±0.2%	±0.2%
Current Regulation	±0.2%	±0.2%

[1] All powers are listed in watts. Guaranteed power specifications for standard systems are indicated in bold print. All power specifications, except multiline visible and IR, are TEM_{00}.

[2] All beam specifications are measured at specified output powers at 514.5 nm for argon lasers, and 647.1 nm for krypton lasers.

[3] Beam diameter is measured at the output-coupler mirror.

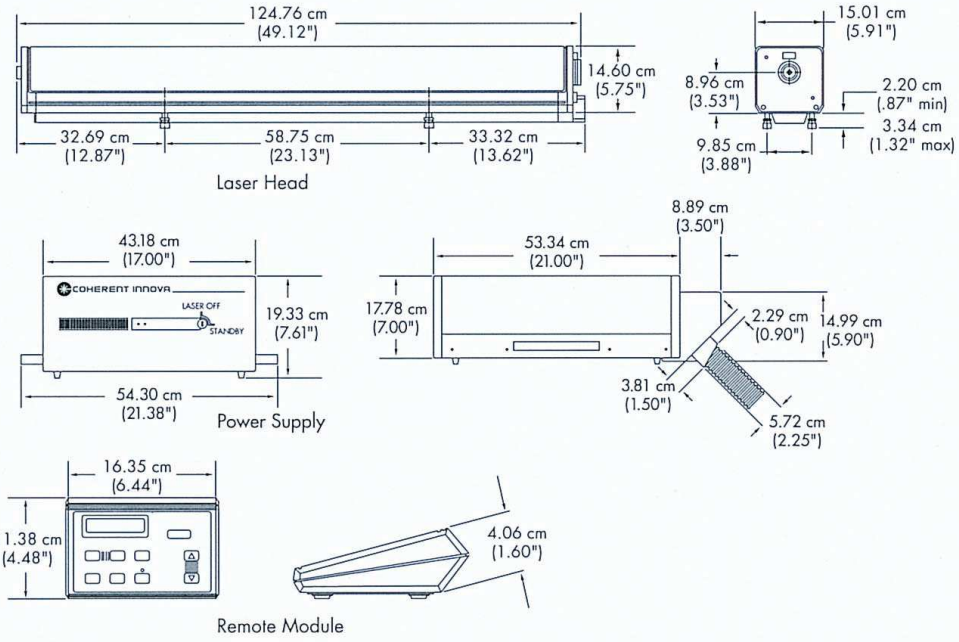
[4] Inside the resonator, the beam waist is located at the flat high reflector. The long-radius output coupler acts as a weak lens to transform the output-beam parameters. The values listed for beam divergence, beam-waist diameter and beam-waist location take into account the weak lens effect. The value for beam-waist location is measured from the output coupler toward the high reflector.

[5] Maximum peak variation over any 30-minute period after a 2-hour warm-up.

[6] Measured with a 10 Hz to 2 MHz photodiode driving a resistive load at 514.5 nm for argon systems and 647.1 nm for krypton systems.

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Dimensions



System Weight

	Crated	Uncrated
Head	66 kg (147 lb)	42 kg (92 lb)
Power Supply	66 kg (147 lb)	39 kg (87 lb)

Utility Requirements

Input Power	3-phase with ground
Voltage	208 vac ±10%, 50 or 60 Hz
Current	50 amps/phase @ 208 vac
Cooling Water	
Flow Rate/Minute	8.5 liters (2.2 U.S. gallons)
Pressure	1.80 - 4.23 kg/cm^2 (25 - 60 psi)
Inlet Temp[1]	10 - 35°C (50 - 95°F)

[1] Incoming water temperature must be above the dew point of the ambient air in order to avoid danger of condensation on high-voltage electronic circuitry.

Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

REGISTERED

Innova 90C Warranty

Coherent offers a limited warranty that covers parts and labor for the entire Innova 90C system. Please refer to the latest version of the Coherent, Inc., Laser Group, North American Price List for full details of this warranty coverage.

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