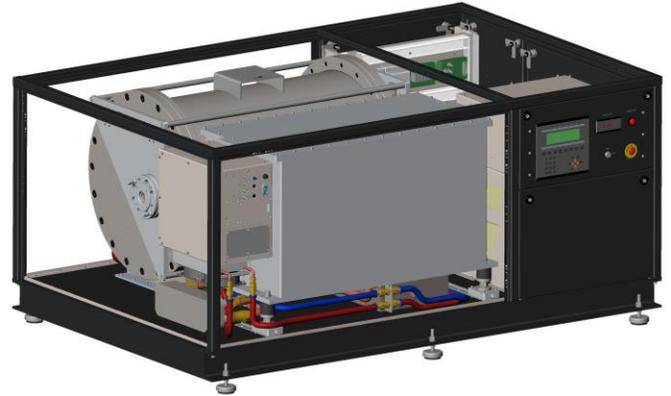


HP Series High Repetition Rate

The High Pressure lasers are part of *sdilasers™* standard Transversely-Excited (TE) CO₂ laser product series. The HP 100/25 and HP 300/75 models are high repetition rate models. Configuring the laser pulse energy selectively controls total output energy, providing optimal flexibility for the end user. The output pulse of these lasers is comparatively short for a TE CO₂ laser, resulting in a high peak power. The laser can be configured as an oscillator or as a pulse amplifier.



Each laser unit is packaged into a single, well-designed and ergonomically sound enclosure, facilitating effortless transport, installation and operation. Required external interfaces are limited to electrical supply, laser gas, cooling water and vacuum pump. The HP system design also allows for easy maintenance and servicing of the laser system by virtue of easily removable panels and straightforward access. Due to the high degree of stability, the laser resonator requires no adjustment after the initial cavity alignment, which is done during commissioning.

Fully automated, the laser unit offers advanced features such as an RS232 interface to facilitate local as well as remote computerized control. An optical arc detection system protects the laser system from improper discharge conditions. The laser resonator can be configured to have a grating or agile tuner for manual or automatic wavelength tuning of the laser. TE CO₂ lasers also feature closed gas loop operation with the addition of room temperature catalysts to the laser, housed in the optional side arm catalyst system. Standard models can also be individually customized. Other unique applications include utilizing lasers as oscillators or amplifiers for Master Oscillator Power Amplifier (MOPA) configurations. Please contact us to determine which laser model will best suit your application requirements.

Key Performance Features:

- High pressure operation (up to 10atm)
- High repetition rate
- Short output pulse
- High peak power per pulse
- Local/Remote control
- Side arm catalyst for gas recycling standard on all HP models
- Unsurpassed output stability at maximum repetition rate
- Continuous tunability (9.2 μm to 10.8μm)
- Fully industrialized for long operational life
- Ease of service
- EMI-shielded stainless steel enclosure panels

HP Series *sdilasers™* models are ideal for applications such as:

- High energy physics
- Laser pulse amplification
- Isotope separation

Creating Solutions that Dramatically Enhance Real Value for *your* Customers.

HP Series – High Repetition Rate Specifications

Model	HP100/25	HP300/75
Wavelength (µm)	9.2 - 10.8	9.2 - 10.8
Repetition rate (Hz)	100	300
Pulse energy - Multimode (J)	0.25	0.25
Pulse energy - TEM ₀₀ (J)	0.100	0.100
Average output power - Multimode (W)	25	75
Average output power - TEM ₀₀ (W)	10	30
Pulse width - FWHM of initial spike (ns)	50 - 100	50 - 100
Output stability (1 sigma)	<4%	<4%
Jitter (1 sigma)	<10ns	<10ns
Beam height - Multimode (mm)	9	9
Beam width - Multimode (mm)	9	9
Beam Quality factor (M ²) - Multimode	2 - 4	2 - 4
Beam waist - TEM ₀₀ (mm)	4.5	4.5
Beam Quality factor (M ²) - TEM ₀₀	1 - 2	1 - 2
Maximum Operating pressure (atm)	10	10
Dimensions (L x W x H)	1.9m x 1.5m x 1.2m	1.9m x 1.5m x 1.2m
Weight - including transformer oil (kg)	2000	2000
Gas load lifetime for closed loop system	>100,000,000 pulses	>100,000,000 pulses
Electrical voltage	208V, 380V 50/60Hz	208V, 380V 50/60Hz
Phase	Three phase	Three phase
Pulse Circuit	Thyratron switched	Thyratron switched
Pre-ionisation	Spark pre-ionised	Spark pre-ionised
Cooling services Temperature stabilised, closed loop chilled water supply with temperature at 18°C, with a heat removal capacity of:	12kW	20kW
Optional extras	Agile wavelength tuner Manual wavelength tuner Side arm catalyst system	Manual wavelength tuner Side arm catalyst system
Typical applications	High energy physics Laser pulse amplification Isotope separation	