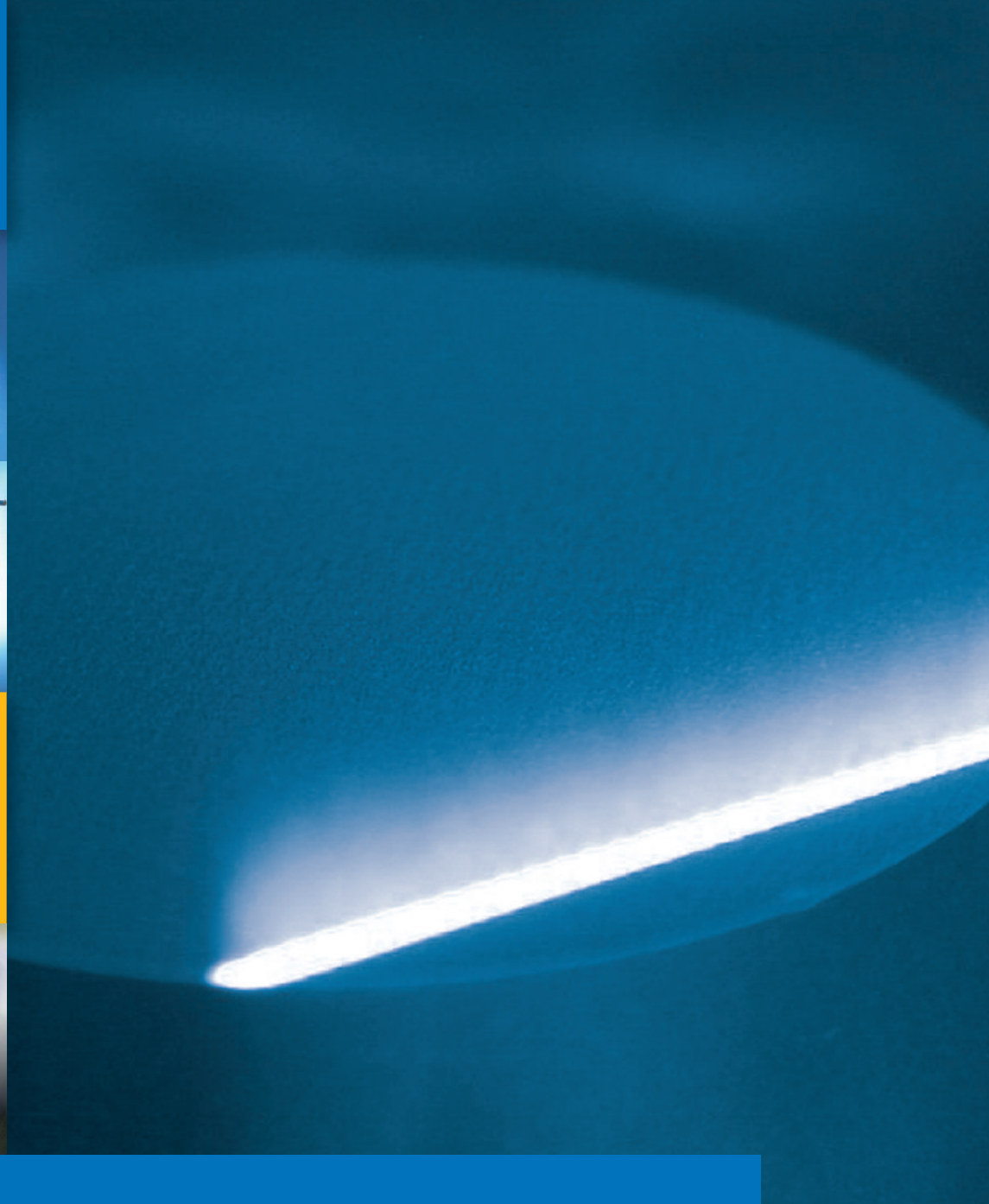
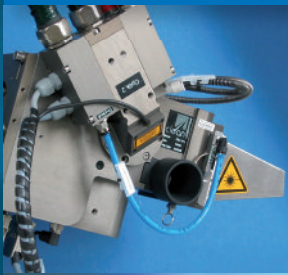


CLEAN-LASERSYSTEME GMBH

PRODUCT INFORMATION & TECHNICAL DATA



HIT THE SPOT WITH LIGHT.

 cleanLASER

LOW POWER: CL 20 BACKPACK

ULTRA-MOBILE COMPACT LASER CLEANING

2



- Backpack mounted laser - the ultimate in mobility
- Average laser power up to 20 Watt
- Gentle & precise cleaning of sensitive surfaces
- Optional rechargeable battery powered operation
- Diode pumped solid-state laser
- Very quiet air-cooled system
- Large operating distance (up to 250 mm)
- Laser class 4 product

Laser optics



Laser optics OS H 20 (optional with distance sensor or F-Theta objective)

Stamp optic for automated 2D surface treatment

Application examples



- De-coating of small areas
- Restoration & Conservation
- Natural stone cleaning
- Rust/oxide removal
- Oil & grease removal
- Selective paint removal
- Micro-profiling
- Pre-treatment to enhance adhesive bonding



Backpack Laser in action – battery operated - no external power necessary, fiber optic beam delivery, integrated control & cooling unit

Whether it's an Egyptian burial chamber, a plane's wing or other difficult to access areas, the backpack laser goes almost everywhere.

The CL 20 Backpack features a 20 Watt diode pumped laser source with adjustable power settings. The laser is mounted to a backpack support frame for ease of transport and operator comfort.

Standard system features: CL 20 Backpack

- Extremely compact laser unit
- Combination direct power supply and quick-charger for batteries
- Special Backpack-package - includes carrying system & protective cover
- Handheld laser optics OS H 20 with large operating distance (up to 250 mm)
- Beam delivered via 2 meter fiber optic

Options:

- Additional battery pack
- Integrated red targeting laser
- 2D laser beam package with Stamp optic (incl. software and laptop)
- Wide-range of beam focal optics

This super portable 20 Watt laser is well-suited for small area treatments. With its rechargeable battery pack, this laser can operate without the need of power cords.

CL 20 BACKPACK TECHNICAL DATA

Size [mm]	Approx. 200 x 300 x 610
Weight (approx.) [kg]	12 kg (~26 lb)
Cooling system	Internal air-cooled system
Specified laser power of the beam source [W]	20
Wavelength [nm]	1064
Power supply (incl. quick charger)	100 - 240 AC (50/60 hz)
Minimum / Maximum ambient temperature [°C]	5 - 40
Humidity [%]	10 - 95 non-condensing

LOW POWER: CL 20 / CL 50

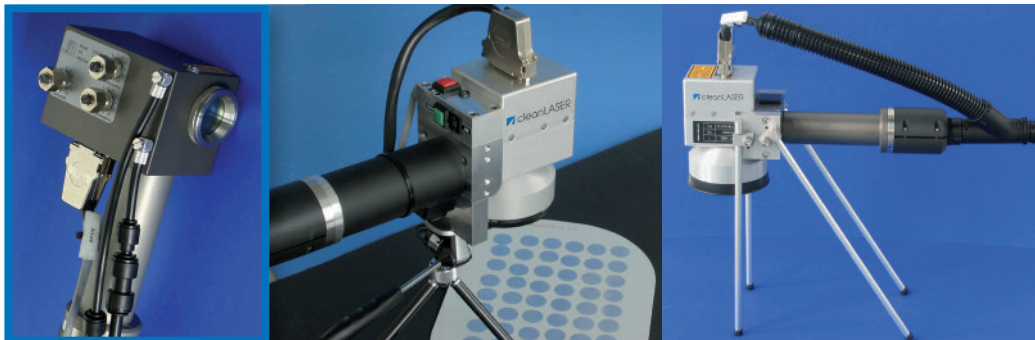
COMPACT MICRO SYSTEM LASERS

4



- Average laser power either 20 or 50 Watt
- Laser systems for the precise cleaning of sensitive surfaces
- Diode pumped solid-state laser
- Very quiet air-cooled system
- Large operating distance (up to 500 mm)
- Modular configuration in 19" industrial housing
- Easy production line integration
- Laser class 4 product

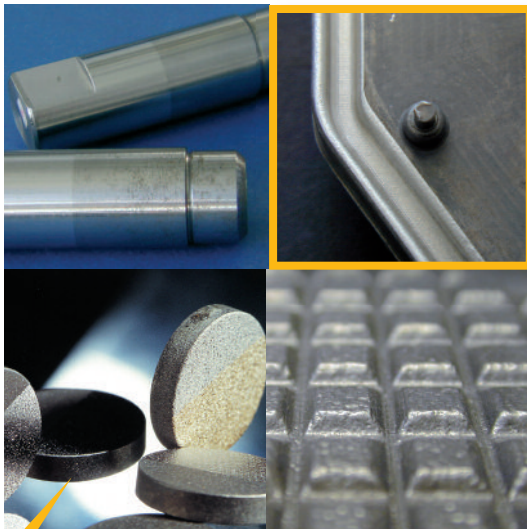
Laser optics



Laser optics OS A 20
(optional with F-Theta
objective)

2D laser optics Stamp for complex geometries (ovals, circles)

Application examples



- Processing and de-coating of small areas
- Pre-treatment for adhesive bonding
- In-line baking plate cleaning
- Cleaning of print rollers
- Precise de-coating
- Restoration & Conservation
- Rust/oxide removal
- Precise oil removal from metallic surfaces



Modular laser system with CL 20 integrated in air-conditioned switch cabinet

The CL 20 and the CL 50 are q-switched pulsed lasers. This gives the CL 20 a peak pulse power of 5 kW and the CL 50 up to 50 kW.

Compact and versatile, the CL 20 and CL 50 are designed for the cost-effective treatment of small areas that require gentle high precision cleaning, de-coating and other surface treatments.

Standard system features: CL 20 / CL 50

- Compact laser unit
- Quiet cooling system
- Internal control electronics with SPS interface
- Laser optics with large operating distance (up to 500 mm)
- Flexible fiber optic beam delivery up to 4 m

Options:

- 2D beam deflection incl. software
- Various laser optics
- Integrated red targeting laser
- Air-conditioned industrial housing (dust-proof)
- Water-cooled optical systems for hot applications (bakeries, molds)
- Fieldbus-control

The basic system consists of the laser source, with controls and cooling, a fiber optic for beam delivery and a processing head. A simple main power supply is used for operation with a very low energy demand.

No other media is required for treating parts. These laser systems are easy to operate and virtually maintenance-free.

CL 20 / CL 50 TECHNICAL DATA

Size (d x w x h) [mm]	Ca. 650 x 483 x 175 (19"/ 4 HE)
Weight (approx.) [kg]	(with optics) 27 kg (~28 lb)
Cooling system	Internal air cooling system
Specified laser power of the beam source [W]	20/50
Wavelength [nm]	1064
Power supply	100 V/240 AC (50/60 hz)
Maximal power consumption [W]	400/600
Minimum / Maximum ambient temperature [°C]	5 - 40
Humidity [%]	10 - 95 non-condensing

MID POWER: CL 150 / CL 300 / CL 500

INDUSTRIAL CLEANING LASERS

6



- 150, 300 or 500 Watt average power (cw)
- Space-saving, compact construction
- User-friendly operation
- Pulse power up to 400 kW
- Mobile or stationary
- Diode pumped beam source
- μ C-based controls (menu driven)
- Laser class 4 Product

Laser optics



Ultra-compact Stylus type machining optics for manual or automated appliances



OS H 50 laser optics for manual application



Stamp 2D optic

Application examples



- Complete or selective paint removal (weld inspections)
- Removes oxides, oil, grease & production residues
- Mold cleaning
- Pre-treatment for adhesive bonding
- Structuring of metallic surfaces
- Natural stone cleaning
- De-coating metallic and glass surfaces

TECHNICAL DATA



Optional 19" control cabinet with system operation and performance display

These mid power systems are designed around a powerful, diode pumped solid-state laser source. Mid-power lasers deliver performance with gentleness for de-coating and cleaning industrial parts.

Using the remarkable power of short pulses of laser light high-value parts can be treated without damage and virtually no emissions. Laser cleaning applications include surface prep for bonding and

Standard system features: CL 150 / CL 300 / CL 500

- Integrated cooling system
- Diode pumped solid-state laser
- Range of end effectors/optics
- Flexible beam delivery by 10 m fiber optic

Options:

- Beam switch with 2nd laser optic
- Extended fiber optic (up to 50 m)
- 2D beam deflection incl. software
- Teleservice-module for remote diagnostics via external PC
- Laser process data storage
- Fieldbus interface for automation integration
- Laser optics for automated & special applications
- Integrated red targeting laser

welding, de-coating metallic surfaces - fully or selectively, removal of production residues from tools, molds and many more.

Each unit is designed to consistently deliver high performance with reliability and virtually maintenance-free. Easy to set-up, operate and automate. Plug it in, turn it on and start cleaning/de-coating with laser light - without chemicals, media, dust, water and or clean-up!

CL 150 / CL 300 / CL 500 TECHNICAL DATA

Size (l x w x h) [mm]	1560 x 760 x 1160
Weight (approx.) [kg]	340
Cooling system	air - water optional water - water
Average power of the beam source [W]	150/300/500
Wavelength [nm]	1064
Maximum power consumption [kWh]	3/5/7
Power supply (German vision)	3 x 16 A, 400 V (50/60 hz)
Minimum / Maximum ambient temperature [°C]	5 - 40 (36°C for air-cooled version)
Humidity [%]	< 95, non-condensing

HIGH POWER: CL 1000

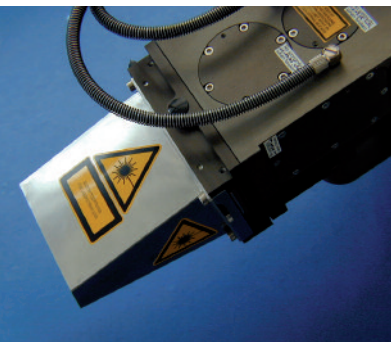
POWERFUL CLEANING LASERS

8

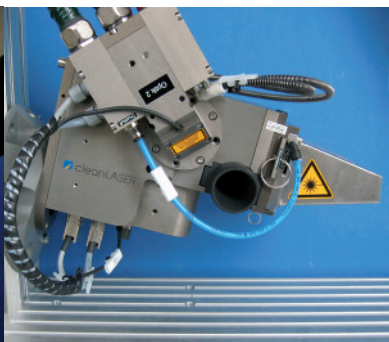


- 1000 Watt average power (cw)
- Diode pumped beam source
- On-board integrated PC for process control, data storage, communications
- Self-contained and fully mobile
- Robust construction for durability in production intensive industries
- Real-time control laser control
- TFT touch screen display of laser parameters
- Laser class 4 product

Laser optics available



Laser optic type OS A 70

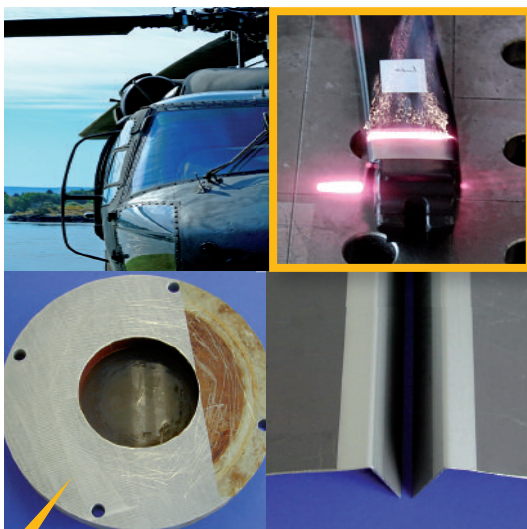


Laser optic type OS H 80



Optional sensors

Application examples



- Complete paint removal
- Pre-coating surface preparation /contaminant removal
- Pre-treatment to enhance adhesive bonding
- Cleaning of large molds
- Weld seam pre-treatment
- Fast cleaning of oily surfaces
- Structuring of metallic surfaces
- Rust/oxide removal
- Nuclear de-contamination



The CL 1000 delivers amazing performance with an average laser power of 1000 Watt. This unit features a diode pumped laser source for a system that's reliable and virtually maintenance-free. This laser system can be configured for both handheld use and automated applications with a fieldbus interface.

Typical applications are production intensive de-coating, pre-treatment of weld seams or de-contamination.

Standard system features: CL 1000

- Diode pumped solid-state laser
- Air or water-cooled
- Laser optic Type OS A 70 or OS H 80
- 10 m fiber optic for flexible beam delivery
- On-board integrated PC with touch screen for process control, data storage, communications

Optional:

- *Beam switch with 2nd laser optic*
- *Teleservice-module for remote diagnostics via external PC*
- *Fieldbus interface for automation integration*
- *Laser optics for automated & special applications*
- *Integrated red targeting laser*
- *Extended fiber optic (up to 50 m)*

For big projects, in the factory, in the field or at sea, this laser is ready to deliver high power for maximum production with all the benefits of cleaning with light.

The CL1000 is designed for reliability and minimal maintenance. It's easy to set-up, operate and automate. It requires no gas or other consumables. Plug it in, turn it on and start cleaning/de-coating with laser light – without chemicals, media, dust, water and no clean-up!

CL 1000 TECHNICAL DATA

Size (l x w x h) [mm]	1600 x 760 x 1270
Weight (approx.) [kg]	490
Cooling system	air - water or water - water
Average laser power [W]	ca. 1000
Wavelength [nm]	1064
Maximum power consumption [kWh]	10
Power supply (German vision)	3 x 16 A, 400 V (50/60 hz)
Minimum / Maximum ambient temperature [°C]	5 - 40 (36°C for air-cooled version)
Humidity [%]	< 95, non-condensing

CL WORKSTATION & AUTOMATION TECHNOLOGY

HIGH PRECISION APPLICATIONS

10

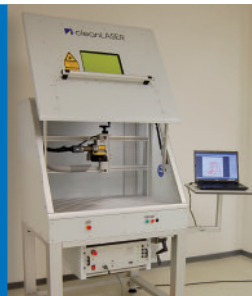


- Available in any laser system power from 20 to 1000 Watt
- Ultra compact solid state or CO₂ laser (1064 nm or 10,6 µm wave length)
- Dust-tight optics
- Various aperture lenses
- Beam delivery by fiber optic or direct beam
- Scan2D ablation software controls laser and multi-axis hardware
- Laser class 4 (optional class 1 housing)

Workstation variants



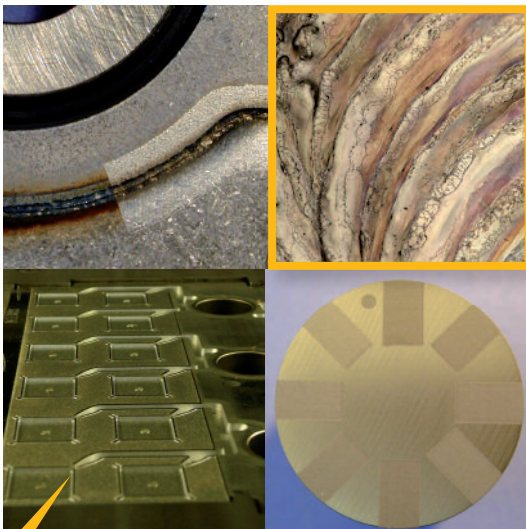
3D-simulation, engineering and system construction



Standard Workstation cleanCELL (saleable system with optional linear axes)

CleanLASER Workstations are flexible systems, well-suited for cleaning/de-coating processes involving manual part assembly. From the cost-effective cleanCELL basic laser safe workstation, to multi-functional automated systems with parts feeding, CleanLASER configures and optimizes each for the application.

Application examples



- Partial structuring
- Pre-treatment for adhesive bonding processes
- Treatment of complex 2D-profiles
- Highly precise paint removal from metallic surfaces
- Partial or selective de-coating
- Automated cleaning processes requiring high precision

CUSTOMIZED SPECIAL SYSTEMS

11



Customized solutions for surface structuring



Facility for pre-treatment of brake pads

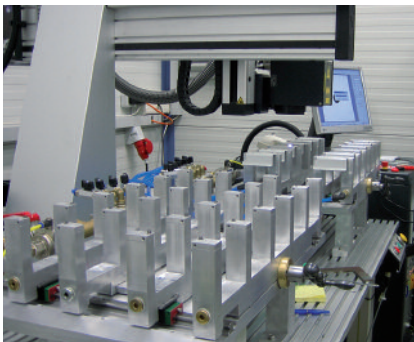
CleanLASER units can be easily integrated into the production line. They use compact end effectors, beam delivery via flexible fiber optic and a compact laser source that will save space as it saves time.

All laser systems are available in modular designs to accommodate existing facilities and automation via digital I/O or fieldbus.

With our global partners CleanLASER offers ready-for-use and customized solutions to a wide range of industries.

When fully-automated, laser cleaning systems maximize the technologies' advantages and economic pay-back potential. CleanLASER can help.

From laser systems using industrial robots, specially designed laser cleaning facilities, our team provides support from the first test, to implementation, with on-going service and technical support.



Customer-specific work piece carrier and fixture



Customized solution "mold WIPER" for cleaning sensitive molds in semiconductor industries



Robot-guided machining

Cleaning with laser light – environmentally friendly, precise and profitable.

Please contact us to discuss your application and discover what's possible
when you clean with light and CleanLASER Systems.



HIT THE SPOT WITH LIGHT.

 cleanLASER

Clean-Lasersysteme GmbH
Dornkaulstraße 6
52134 Aachen
Germany
Phone +49 (0) 2407-9097-0
Fax +49 (0) 2407-9097-11
info@cleanlaser.com
www.cleanlaser.com