



L1-CLEAN

LASER CLEANING



EFFECTIVE PULSED CLEANING
OF ANY CONTAMINATION

www.vpglaserone.ru



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RUST



QUALITY

Point your camera at a photo

MOULD CLEANING



MILL SCALE





VPG
LASERONE

L1-CLEAN X



RESULT

to view the process

PAINT



OXIDE FILM



OIL PRODUCTS



INTERACTIVE PHOTOS

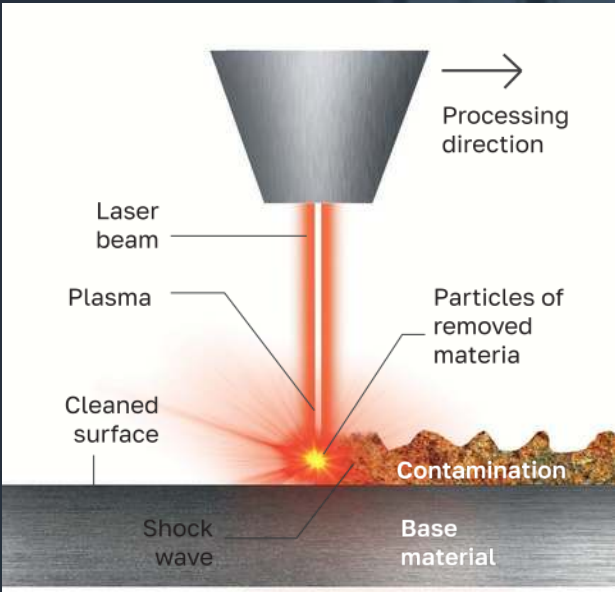
TO VIEW THE VIDEO

- 1) Scan the QR code
- 2) Install the app
- 3) Point your camera at a photo

HOW LASER RADIATION REMOVES CONTAMINATION



Laser cleaning is a technological process in which laser radiation acting on a layer of contamination removes that layer with no effect, or minimal effect, on the surface of the base material.



Contamination is removed from the surface being cleaned through local evaporation of the surface layer of the base. At the moment of evaporation, the pressure of the vapours heated to high temperatures breaks down the non-metallic contamination layer and removes it from the metal surface. L1-CLEAN features a unique high-power pulsed laser that removes surface contamination of various types with the highest efficiency. A built-in library of specially developed cleaning modes helps you start work quickly, without manually selecting the required parameters.

COMPARISON OF LIGHTCLEAN AND TRADITIONAL TECHNOLOGIES

	Mechanical cleaning (abrasives)	Cryoblasting	Jet cleaning	Chemical cleaning	Laser cleaning LightCLEAN
Direct consumables required					
Workspace setup requirements					
Noise level					
Precision processing capability					
Effort of disposing of process waste					
Productivity					
Automation capability					

KEY TECHNICAL SPECIFICATIONS OF THE SYSTEM

Parameter name	Parameter value	
	L1-CLEAN V2	L1-CLEAN X
Laser operating mode	Pulsed	
Power adjustment, %	10–100	
Laser output power, Pmax, W	1000	
Output beam waist diameter, µm	60–70	250
Number of optical channels in the laser	6	1
Delivery fibre diameter, µm	6 x 14	50
Pulse duration, ns	150 (in each channel)	100–250 (not adjustable)
Pulse energy, mJ	1.5 (in each channel)	7
Pulse repetition rate, kHz	25–125 (in each channel)	130–140
Total average output power, W	900–1020 (sum of all channels)	1000–1200
Average output power of each channel, W	150–170	1000–1200
Spectral linewidth, nm	Up to 4	5–6
Cable length, m	10; 15	
Supply voltage, V	210–240	
Maximum power consumption, W	3500	
Cooling method	Air	
Operating temperature range, °C	+10...+35	
Control unit weight, kg	60	

KEY DIFFERENCES BETWEEN L1-CLEAN V2 AND L1-CLEAN X



Cleaning without damaging the base (for dies, moulds, etc.), no "milling"



Cleaning without damaging the base (for dies, moulds, etc.), no "milling"



Productive cleaning of light rust with 600 mm focus and 200 mm cleaning width



Cleaning with added surface roughness



Productive cleaning of any aluminium alloy



L1-CLEAN V2
DELICACY



Removal of temper colours from stainless steel

L1-CLEAN X
POWER



Productive removal of oxide film from aluminium



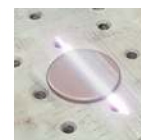
Cleaning with minimal heating (as far as L1-CLEAN allows)



Productive cleaning of complex rust



Productive paint cleaning (including powder coating)



Copper cleaning

PRODUCTIVITY

L1-CLEAN — is the most productive laser cleaning available. The cleaning rate reaches 60 sq. m per hour while maintaining a metal surface cleanliness of Sa 2.5 to ISO 8501-1.



EASE OF CONTROL

Lets you save the system parameter settings so that the required mode can be quickly selected for specific tasks.

RELIABILITY

Thanks to an efficient cooling system and the highest requirements for component quality, L1-CLEAN is able to work 24/7.



DURABILITY

Thirty years of experience in the development and manufacture of fiber lasers mean that our laser cleaning does not lose power over 100,000 hours.



COST EFFICIENCY

10 times more economical than sandblasting thanks to the absence of additional consumables and low power consumption (no more than 4 kW from a 220 V mains supply).



FAST PAYBACK

Minimum cleaning costs with the L1-CLEAN unit do not exceed 26 RUB per hour.



SERVICE

Highly qualified specialists provide prompt technical support and carry out the required manufacturer's service within the Russian Federation.



Weight 60 kg

L1-CLEAN

LASER CLEANING



Easy to operate

o start work, simply plug L1-CLEAN into a 220 V mains supply rated up to 4 kW. Everything needed for work is already included. Frequently used modes can be saved and switched quickly.



Laser power adjustment

Changes the average output power of the laser radiation.

LScanning speed adjustment

This setting determines how fast the laser beam moves across the surface of the material. The travel speed of the laser beam axis affects the degree of material processing. For more delicate processing, the highest scanning speed is usually chosen. At a high setting the laser beam moves fast; at a low setting it moves more slowly.

Processing width adjustment

The system can change the width of the processed area. The higher the processing width setting, the larger the surface cleaning zone.

Scope of delivery



Long-focus lens (to increase the focal distance)

5 protective windows (consumable)

Operator's laser safety goggles

Universal gun holder

CrossJet nozzle for more comfortable operator work



GLOBAL LEADER IN THE LASER INDUSTRY

VPG LaserONE is a Russian company founded by the outstanding Soviet scientist Valentin Pavlovich Gapontsev, founder of the international science and technology corporation.

VPG LaserONE develops and serially produces high-efficiency fiber lasers and amplifiers, optical components, assemblies, modules, instruments, subsystems and systems for:

- Industrial laser cutting, welding, cladding, alloying, heat treatment, marking and cleaning systems.
- Scientific research.
- Fibre-optic, atmospheric and satellite optical communications, cable television.
- Surgery and biomedicine.
- Optical ranging and remote monitoring of industrial facilities and the atmosphere.
- Measurement and control systems, sensors.

In order to introduce innovative laser technologies into production, VPG LaserONE has for many years worked closely with leading domestic machine-building, metallurgical, railway and motor transport enterprises and supplies its customers with more than 600 types of ultra-high-technology laser equipment. Many devices and systems have no equivalents on the world high-tech market. All key components of fiber laser technology are manufactured in-house, which delivers:

- Fast product development.
- Efficient production methods.
- The industry's best product delivery times.
- More advanced and higher-quality solutions.
- The highest wall-plug efficiency, which reduces overall energy consumption and costs.



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1992

Foundation date



1,500+

employees



500+

R&D
specialists



>60 000 m²

facilities



100+

patents



90%

component
localization