Narran ROD

Pulsed laser cleaning systems

ROD 50, 100, 200, 300, 500, 1000, 2000

ROD 50 – 100

ROD 500 – 2000

NARRAN
LASER PRECISION

We are experts in laser technology.

www.narran.cz

NARRAN
LASER PRECISION

COMPANY INTRODUCTION

We are a Czech company that was founded in 2013 for the purpose of development and production of our own laser systems, automation, construction of single-purpose machines and sales of laser equipment, especially from foreign manufacturers. Our team consists of experienced experts, engineers who understand their work and, thanks to many years of experience, are able to solve any customer requirement. We can design a solution, build a bespoke device, recommend a suitable machine, install a machine and of course, there is also warranty and post-warranty service. We have experience with all types of laser applications and the possibilities of using lasers, from surface cleaning, through the engraving of materials to laser welding.

OUR ADVANTAGES

- We offer a complete solution for the customer from the idea to the finished product
- Our team consists of engineers, graduates in the field who are continuing their education
- Cooperation with universities and science centers
- Testing directly on the customer's parts
- Branch in Prague and Malhotice in Moravia
- Training, parameter tuning, service and spare parts
- Certificate ČSN EN ISO 9001: 2016

CONSULTATION	OUR OWN DEVELOPMENT	TESTING
SERVICE	INSTALLATION	TRAINING
SAFETY EQUIPMENT	SAFETY AUDIT	SPARE PARTS

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INTRODUCTION OF THE ROD SYSTEM

The ROD system is a modern and compact laser unit, suitable for immediate use in your operation, or for installation in production lines. The system is predestined for industrial cleaning of materials, the laser is capable of cleaning **oxides, rust, paints, varnishes, grease, dirt and more.**

Due to the fact that it uses the latest fiber laser technology as a laser source, the ROD system has many advantages compared to standard solid-state lasers, eg: **low weight, 230 V power supply, long diode life and reliability.**

EXAMPLES OF LASER CLEANING

APPLICATIONS

- mold cleaning
- rust removal
- oil removal
- degreasing
- paint stripping
- surface preparation
- adjustment of welds
- restoration

ROD SYSTEM BENEFITS

- **high efficiency** - 35-55%
- **mobile** system
- **ecological operation:** no additional material or chemicals are used
- **minimum need for maintenance** - minimum of moving parts
- **longer service life** of diodes - **up to 100,000 hours**
- **gentle** on the surface to be treated
- **automatic internal diagnostics** - automatic shutdown of the laser for protection
- **easy operation**
- **easy integration** into production lines
- possibility of **integration with a robot**
- **integrated cooling**

ROD SYSTEM SPECIFICATIONS

	ROD 50W	ROD 100W	ROD 200W	ROD 300W	ROD 500W	ROD 1000W	ROD 2000W
Average POWER	50 W	100 W	200 W	300 W	500 W	1000 W	2000 W
Peak power in pulse	10 kW	10 kW	232 kW	232 kW	2500 kW	2500 kW	1600 kW
Wavelength	1064-1070 nm	1064-1070 nm	1064-1070 nm	1064-1070 nm	1064-1070 nm	1064-1070 nm	1064-1070 nm
Frequency	2-50 kHz	2-50 kHz	2-200 kHz	3-300 kHz	2-50 kHz	20-50 kHz	20-50 kHz
Optical fiber length	5 m	5 m	10 m	10 m	10 m (up to 100 m)	10 m (up to 100 m)	10 m (up to 100 m)
Head weight	1,5 kg	1,5 kg	1 kg	1 kg	2 kg	2 kg	2 kg
Operating temp.	5 - 45 °C	5 - 45 °C	5 - 45 °C	5 - 45 °C	5 - 45 °C	5 - 45 °C	5 - 45 °C
Dimensions	0,6 x 0,5 x 0,5 m	0,6 x 0,5 x 0,5 m	0,5 x 0,6 x 0,7 m	0,5 x 0,6 x 0,7 m	1,1 x 1,26 x 0,6 m	1,1 x 1,26 x 0,6 m	1,1 x 1,26 x 0,6 m
Weight	50 kg	50 kg	52 kg	55 kg	250 kg	270 kg	2|80 kg
Power consumption	0,4 kW (1 PE)	0,45 kW (1 PE)	1,3 kW (1 PE)	1,4 kW (1 PE)	3,5 kW (1 PE)	5 kW (3+PE+N)	10 kW (3+PE+N)
Power supply	110/230V (16A)	110/230V (16A)	110/230V (16A)	110/230V (16A)	230V (16A)	400 V (16A)	400 V (32A)
Laser beam scanning	2D	2D	2D	2D	1D	1D	1D

NEW GENERATION PROCESS HEAD

Our already 3rd generation process laser cleaning head is the result of 7 years of development and refinement under the strict supervision of our optical and mechanical engineers.

- A scanning system that is custom-designed for smooth and even laser cleaning in multiple beam shapes. With adjustable beam shapes, our lasers increase efficiency, accuracy, and uniformity in cleaning and reach textured and grooved surfaces that basic laser cleaning cannot handle.
- Focus distance adjustable to millimeters without the need to manually change lenses
- Basic cleaning parameters (focus, scan speed, scan width) are adjustable directly on the process head, no need to use the machine display
- Active water cooling circuit ensures trouble-free operation even in harsh conditions and three-shift operation.
- Can be attached to a manipulator or robotic arm even retrospectively after purchase of the laser. The industrial PLC is ready for communication with higher-level systems or external laser beam triggering.
- Angled beam output eliminates back reflections of both laser radiation and released contnants and fumes. Therefore, the head is minimally exposed to dirt and heat, resulting in less maintnance, which has a positive effect on its overall lifetime.

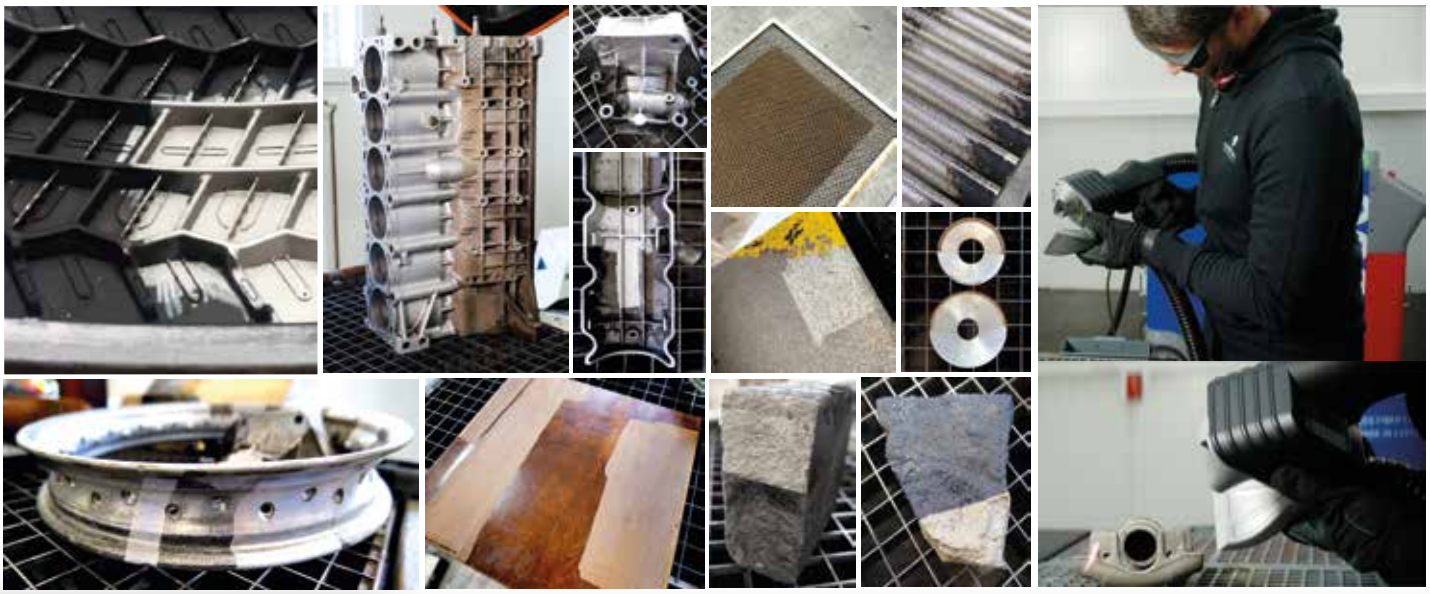
HOW DOES LASER CLEANING WORK?

Laser cleaning uses concentrated laser radiation to evaporate impurities from the layer. Impurities are removed using ultra-short laser pulses (µs-ms) that generate heat and heat-induced pressure - the high temperature inside the material creates a high pressure that causes it to evaporate. **Laser cleaning is therefore very gentle on the substrate. It produces almost no waste material, as most impurities evaporate, thanks to high efficiency of used laser resonators, the cleaning process has very low operating costs.** Laser cleaning is non-contact, non-abrasive method, which is very gentle on the surface of the material. Because the course of the interaction of the laser radiation with the material depends on the material, it is possible to set the cleaning parameters so that the substrate remains intact after cleaning.

ADVANTAGES OF LASER CLEANING OVER OTHER METHODS

	LASER CLEANING	SAND CLEANING	CHEMICAL CLEANING	HIGH PRESSURE CLEANING	STEAM CLEANING	MANUAL CLEANING
SAVING TIME						
Possibility to clean in a production environment	✓	✗	−	✗	✗	−
Quick cleaning method	✓	✓	✗	✓	✓	✗
Short or no production cessation	✓	✗	−	✗	✓	−
ENVIRONMENTALLY FRIENDLY						
It does not produce any added waste	✓	✗	✗	✗	✗	✗
It makes no noise	✗	✗	✓	✗	✓	✓
No need to discard / decontaminate the cleaning medium	✓	✗	✗	✗	✓	✗
Environmentally friendly	✓	✗	✗	✓	✓	✓
ANOTHER BENEFITS						
Economical	✓	✗	✗	✗	✓	✓
It does not damage the surface material	✓	✗	−	−	−	✗

LEGEND ✓ It's the advantage of this method − It can be the advantage of this method ✗ No, it's not the advantage of this method



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CLEANING LASER USES

Laser cleaning is very gentle on the base material, it can also be used for cleaning very fragile plastics molds, ie glossy, polished and etched designs. **In addition, it is also fast, relatively quiet and dust - free (on difference from mechanical grinding, blasting, sandblasting).**

The laser can remove a number of unwanted surfaces materials (eg greases, oils, separators, rust, paints, varnishes and adhesives, rubber and grease). Correctly set and selected laser, both hardware and software wise, is absorbed in the impurity (rust, oil, paint,...) where the laser ablation occurs, ie removal of impurities, but does not have enough energy to damage the base material (steel, stainless steel, aluminum, metals, copper, stone, sandstone, granite, marble...), **so it is especially suitable for cleaning molds, tools, car parts, machines and also for restoration...**

- LOW OPERATING COSTS MAX 1 EUR / HOUR
- WITHOUT DAMAGING THE BASE MATERIAL
- EASY TO OPERATE
- LONG SERVICE INTERVALS
- MINIMAL TEMPERATURE EFFECT ON THE SUBSTRATE

Rust removal: cleaning lasers are ideal for removing rust from steel structures, machine parts, tools, pipes and vehicles. This method is fast, does not damage the underlying material and eliminates the need for abrasive or chemical processes.

Degreasing: lasers are often used to remove oil, grease and other oily contaminants from the surfaces of automotive parts, machine components and tools. This prepares parts for further processing such as welding, painting or bonding.

Restoration: in the field of conservation and restoration, laser cleaning is a revolutionary technology. It allows for the gentle removal of dirt, deposits or layers of corrosion from historical artifacts, sculptures, facades and works of art without damaging fine details.

Mold cleaning: in the plastics, rubber and metalworking industries, lasers are popular for cleaning molds of deposits and material residues without disassembly. This minimizes downtime and increases production efficiency.

Paint removal: lasers gently and precisely remove paint and varnish from metals and other materials, ideal for the aerospace, automotive or antique restoration industries

Weld cleaning: laser cleaning is widely used to remove scale, oxides and other residues from welds. This improves aesthetics, strength and corrosion resistance, which is particularly critical in the automotive, engineering and energy industries..

Wood and stone cleaning: lasers are ideal for removing layers of dirt, old paint or graffiti from wood and stone surfaces. This technology is gentle on the surface, making it suitable for renovating furniture, historic buildings, statues or facades.

Automotive components: laser cleaning is widely used in the automotive industry to remove dirt, adhesive residues, lubricants or oxides from components. It is used, for example, in brake discs, engine parts, or in the preparation of surfaces for bonding and painting.

OTHER LASER APPLICATIONS

- LASER CLEANING
- LASER DRILLING
- LASER WELDING
- LASER CUTTING
- LASER MARKING AND ENGRAVING
- LASER MICROMACHINING

WE ALSO OFFER

✓ LASER COMPONENTS

Lasers / laser sources
Synrad, IPG
Optomechanics, positioners
Optical and anti-vibration tables
Process laser heads
Protective equipment
Measuring instruments
Coolers, suction, filtration

✓ CONSUMABLES

Protection glass
Cleaning kits
Deionization cartridges
Lamps
Trumpf spare parts
Nozzles
Fiber optics
ZnSe optics
Ceramic insulating rings
Precitec spare parts

NARRAN LASER PRECISION

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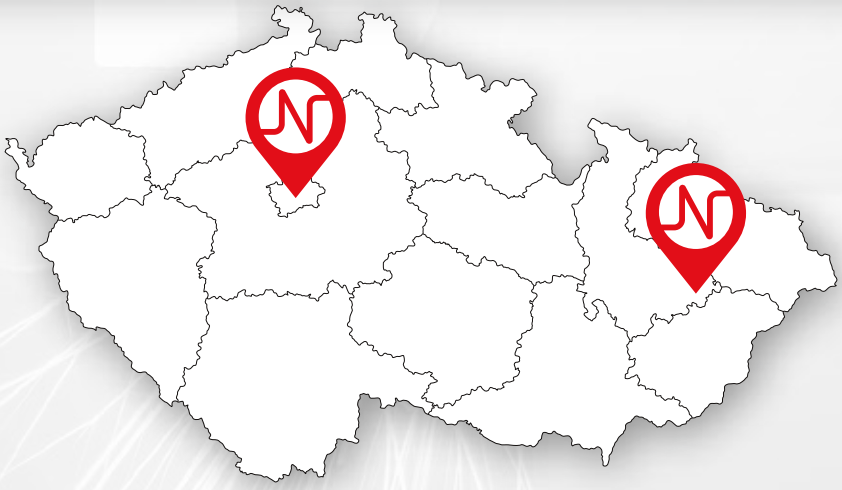


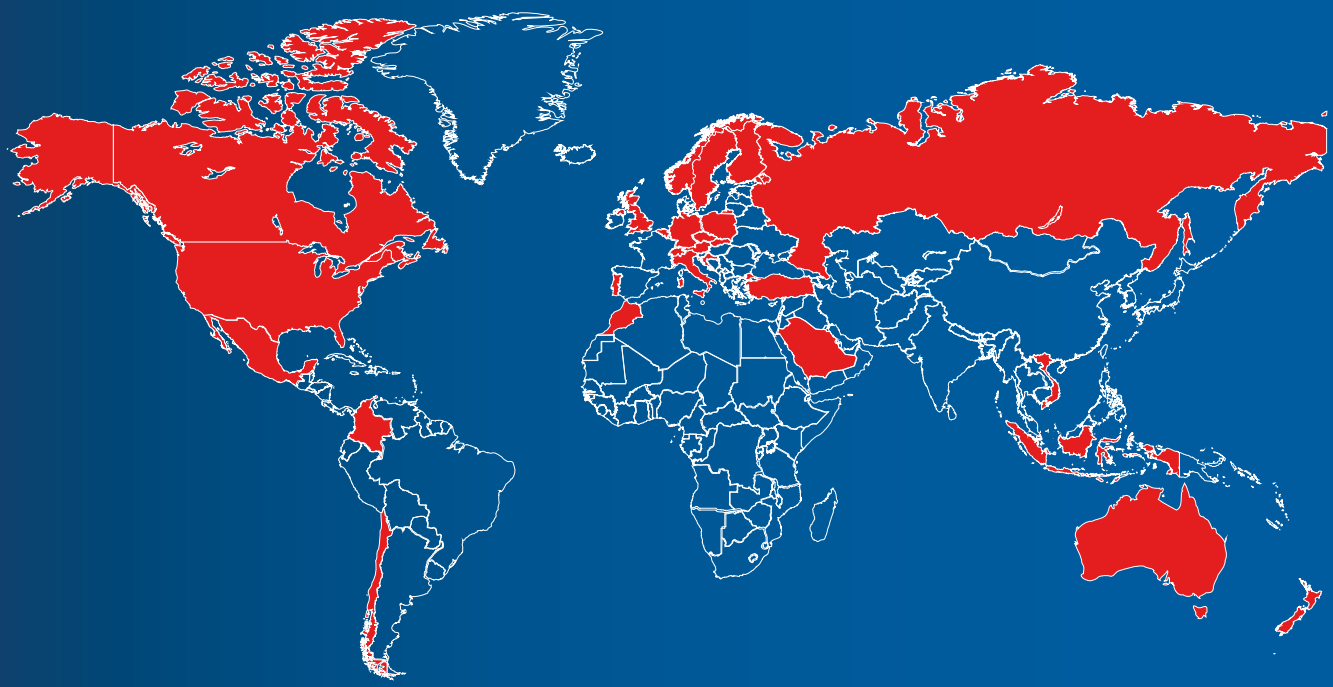
WE ARE A PROUD SUPPLIER OF THESE COMPANIES

WE ARE WORLDWIDE

Since 2014 we have delivered hundreds of machines to over than 20 countries all across the globe and more are emerging every day. Our clients are both state institutions such as museums, schools, scientific institutions as well as private companies, manufacturing factories from the automotive, aviation, manufacturing industries and private individuals building their business on laser cleaning.

We know that the biggest challenge isn't delivering, but servicing the machines remotely, that is why our technicians are on-call 24/7 ready to help via remote-access. If the situation does not allow otherwise, we are ready to send our technicians across the world for laser work training, consultations, upgrades and of course any service, because we are well aware that production simply can not stop for any reason.

We strongly believe that laser cleaning is the future answer to broad spectre of industrial needs and are fully prepared to provide the very best solution as well as maintaining it.



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