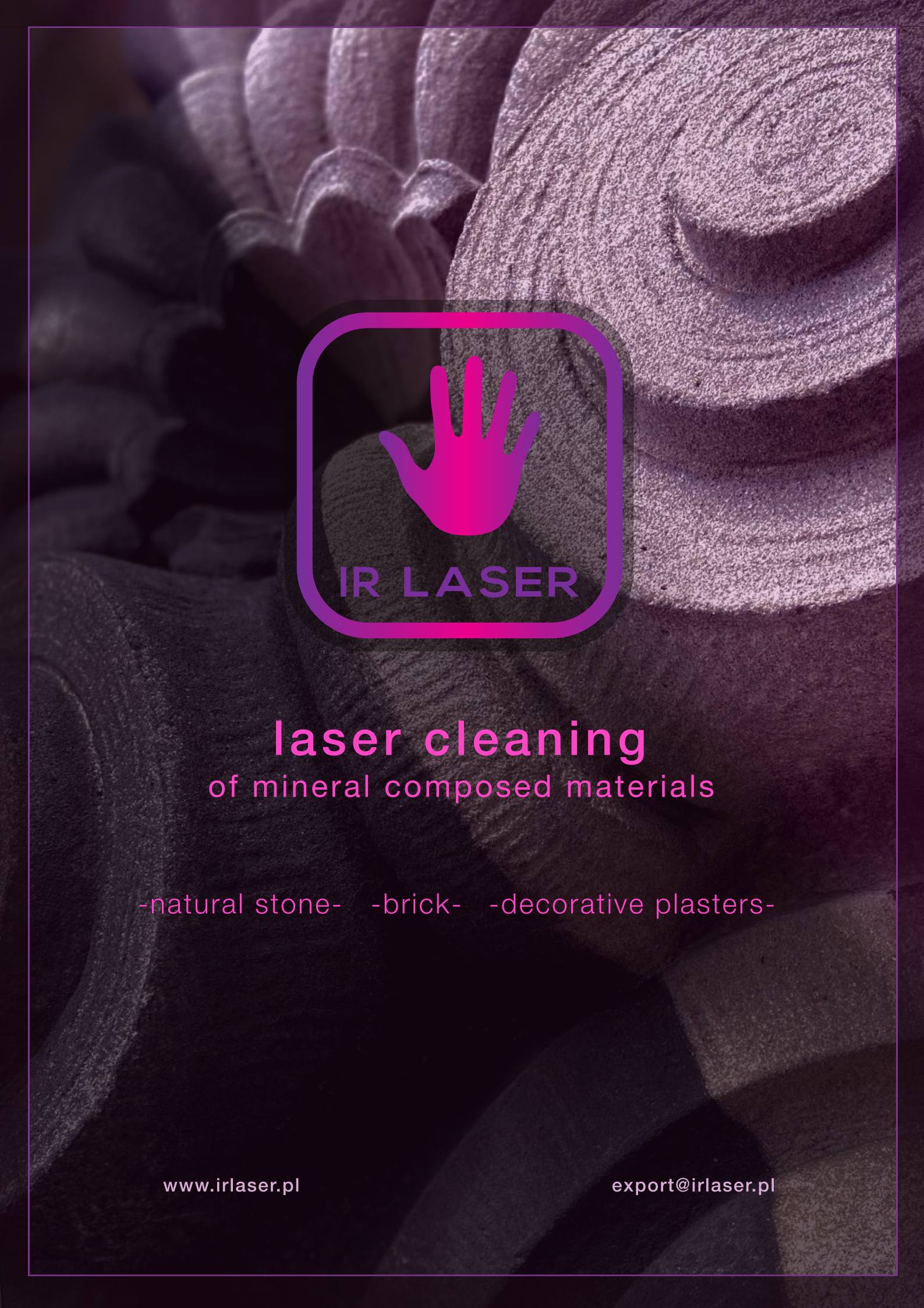

laser cleaning

of mineral composed materials

-natural stone- -brick- -decorative plasters-

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technology

The laser ablation method has been successfully used in many industries for years. Wherever non-invasiveness and precision count, lasers turned out to be the best alternative to traditional methods, the use of which often resulted in a number of undesirable consequences. It is therefore not surprising that they were also quickly applied in the conservation of works of art.

The first applications of the laser in the process of cleaning monuments concerned mainly small objects, such as sculptures or small elements made of metal. A major limitation that prevented the use of the laser in large-area operations was the technology of the time. It made lasers very delicate devices and could hardly leave conservation workshops. In addition, the working area was too small to effectively deal with, for example, an architectural detail, not to mention the entire facade.

In recent years, however, there have been a number of innovations that have allowed the creation of a fully mobile and definitely more efficient device. The introduction of new generation laser sources has made the device much more resistant to a harsh working environment, and the redesign of the optical system and the beam control algorithm have increased the working area several times.
Today, cleaning the entire facade is not only possible, but also often more profitable than in the case of traditional methods.

The devices that our company is equipped with have been designed especially for conservation of works of art. Made in Poland, using top-class European components, they guarantee safe and effective cleaning of most historic materials.

natural stone

A noble and beautiful material whose proper maintenance is an extremely difficult task. Due to its great functional properties, it is very often found in places where it is exposed to unfavorable conditions, whether atmospheric or resulting from human activity. Cyclically repeated, aggressive treatments of mechanical and chemical cleaning successively move us away from its original appearance. Laser cleaning is the only fully non-invasive method that allows you to safely clean the stone without affecting its natural patina and original traces of the carving tool.

natural stone

brick

It is one of the basic building materials, as well as facing. Depending on the composition and the degree of firing, it sometimes has a yellowish, reddish or even black color. The problem of brick maintenance consists mainly in the time-consuming process of cleaning its surface layer so that it does not wear out, which would significantly increase its water absorption. The laser quickly and effectively removes civilization dirt, repainting or graffiti, without damaging the surface of the cleaned material.

brick

decorative plasters

There are many types of decorative plaster. They differ in the used decorative aggregate, color or method of plastering. Sometimes they have scratched patterns in their structure, finely drawn grooves and shapes with complex geometry. Like any plaster, they are subject to a number of external factors, which, combined with the characteristics of the material, lead to inevitable degradation. Due to the relatively delicate structure of the coatings, many cleaning methods turn out to be far too aggressive and lead to irretrievable loss of the original appearance. Laser ablation is the only fully non-contact cleaning method. This means that each exfoliated plaster part, after laser work is completed, remains intact in its place.

decorative plasters

advantages

safety - laser ablation technology is the safest method of removing layers and it is approved where the use of chemicals and abrasive methods is impossible.

selectivity - the ability to remove individual layers of coatings without affecting the others. Depending on the requirements, we are able to control the thickness of the removed layer.

contactless - the cleaning medium is light energy, so there is no physical contact with the cleaned surface. It is particularly important in the case of delicate, corroded, detached materials or those with a characteristic, original carving.

chemical neutrality – no use of chemicals that have a negative impact on the durability of binders and pigments.

physical neutrality - eliminating the long-term effect of water and, consequently, the need for drying. Additionally, laser generates only a minimum dose of heat.

ecology - harmful substances originating from dirt deposits and emanating during the ablation process must be eliminated. The evaporated impurities or solid particles are absorbed by the suction with suitable filtration. Also only 230V power source is required.

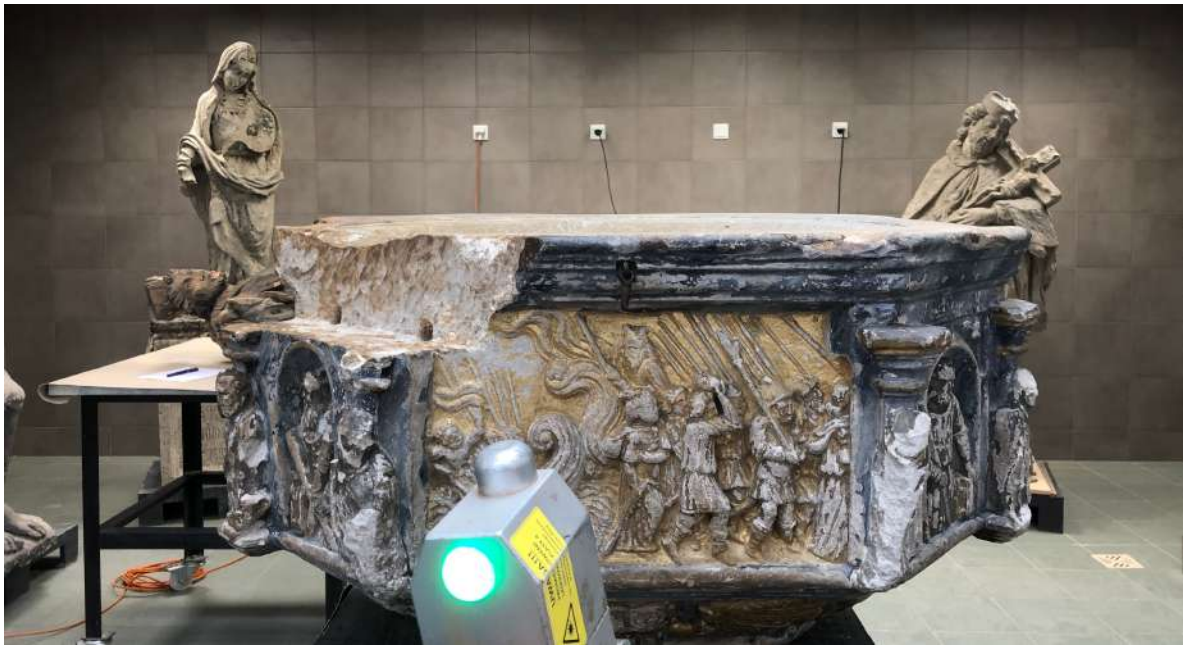
economy - the maximum efficiency of our lasers is even 15 m^2 per hour for one device. The object does not need to dry, the workplace does not require cleaning, and the surface usually does not require additional cleaning procedures.

professional approach

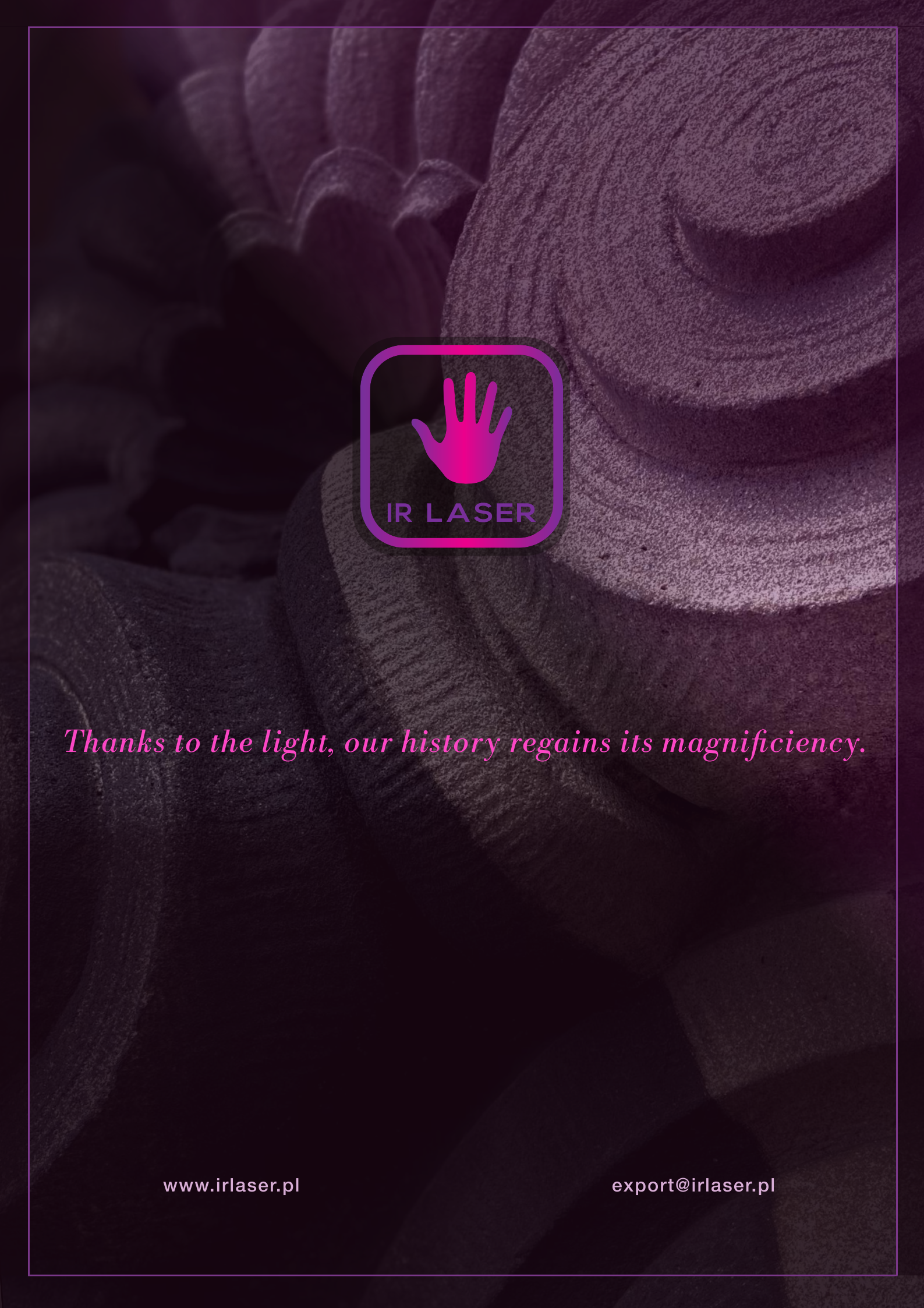
IR Laser exists and works for over 3 years. During this time, we have completed over 150 projects for clients and scientific institutions from 7 European countries. Our portfolio includes both small and complex sculptures, as well as several hundred-meter facades.

We have equipment and training to work in the toughest conditions:

- work in contaminated zones (e.g. lead)
- work at heights and in hard-to-reach places
- work in places not excluded from use (extraction and filter systems)



Our team consists of engineers, art conservators and operators with many years of experience in working on historic buildings. We constantly improve our competences by conducting scientific research, participating in conferences and working on the development of laser systems.



Thanks to the light, our history regains its magnificiency.

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