



LASER PROCESSING OF ORGANIC SUBSTANCES

THE TASK

The disadvantage of laser cutting organic substances has been the creation of aerosols that can only be captured and separated by the installation of costly mechanical systems. The resultant contaminants can clog dry working filters in a short period of time. Cleaning has been accomplished by washing, the use of catalytic converters or with thermal combustion, but an innovative dry working exhaust system would be a preferable economical alternative.



Example of a designed system, VARIO with activated carbon filter



Laser processing of Example of a designed system, L-Cut 4 DOS with activated carbon filter and automatic CO₂ extinguishing system

Laser process	Materials
Engraving	Timber
	Plastics
Cutting	Leather
	Textiles
Perforating	Paper
	Paper-Plastics-Compound

Examples of use - realized systems for:	
Beverage packings	Press cylinder gravure
Plastic foil keyboards	Die making
Flat screen technology	Cigarette tube production
Acrylic processing	Textiles
Abrasive paper processing	Removal of varnish layers and paint stripping machines
Wooden floor technology	

THE SOLUTION

Sticky substances that are created during laser cutting will normally clog each filter surface. We solve this problem by applying an additional layer on the filter element's surface. When the system is activated, a layer of additive is distributed on the entire filter surface by means of a dosing device. A separate protective layer is created between the filter media and the aerosol particles

Since the particles to be separated do not get in contact with the filter's surface, clogging of the pores by adhesive and humid substances is prevented. This process not only protects the filtering surface but also adsorbs a large portion of the hydrocarbons. In addition, the contaminants in the exhausted air become inert, creating effective fire protection.

When initiating the process, the dosing unit and the disposal bin are filled with the additive agent. During continuous operation, the dry additive agent that has become saturated with adhesive aerosols must be cleaned off the filter surface on a regular basis. This is accomplished by a series of compressed air pulses. At the same time, the additive agent within the disposal bin starts to rise, is pulled up again and automatically forms a protective layer on the filtering surface. The process is repeated with the aid of built-in solenoid valves that activate the bin dosing in adjustable time increments. When the additive becomes saturated with dust and aerosols, new material is fed by the automatic dosing unit.

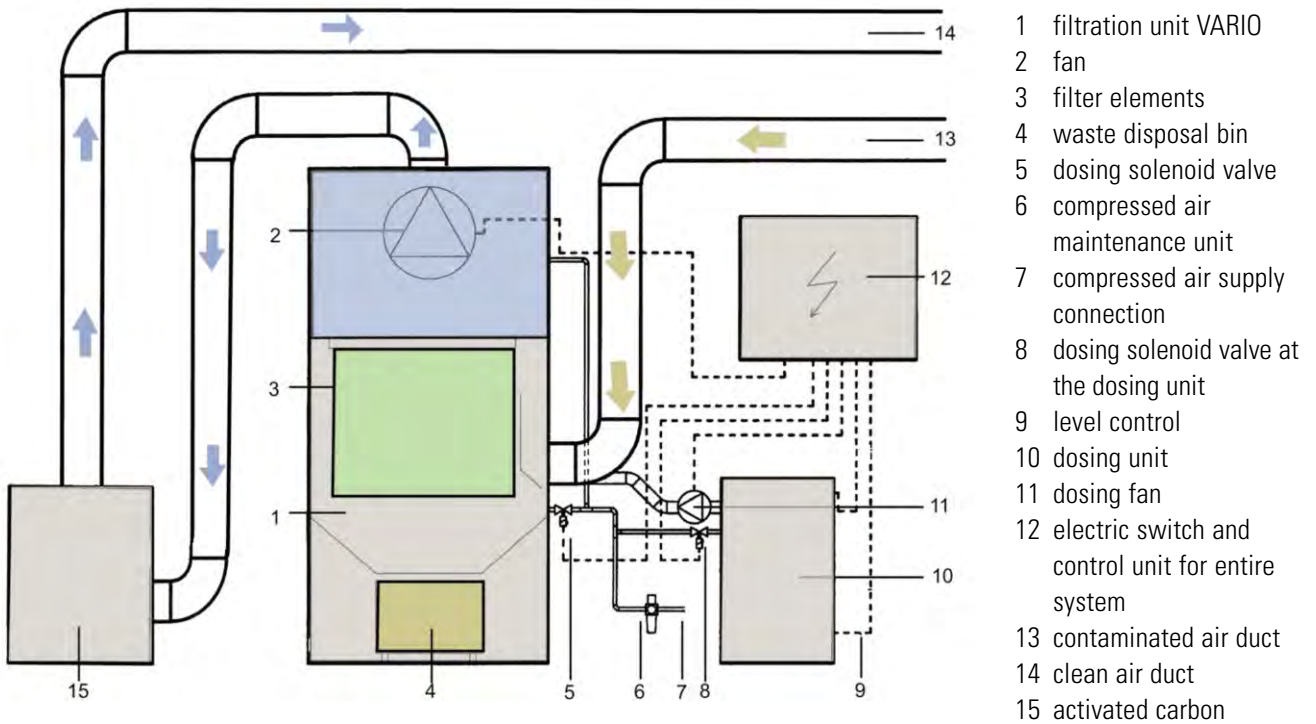
This process ensures that the air flow remains constant, even during 24-hour operation. All parameters required to maintain optimal operating conditions can be individually set at the specially designed electrical switch and control unit.

ADVANTAGES

- compact size
- energy-efficient filter (Y-material)
- effective fire protection
- low maintenance efforts
- compressed air savings by individually programmable pulse cleaning
- long life, warranty up to approx. 15.000 operating hours
 - depending on the process
- high availability at economic system operation
- compliance with TA-Luft regulations



Example of a designed system, L-Cut 4 DOS with activated carbon filter automatic CO₂ extinguishing system



System to separate organic substances that are created during laser processing.



Example of a designed system, VARIO with activated carbon filter



Example of a designed system, L-Cut 4 DOS with activated carbon filter automatic CO₂ extinguishing system



WE CLEAN THE AIR.



REFERENCES OF MACHINE MANUFACTURERS

(abridged version)

Amada GmbH, Germany
Baasel, Starnberg, Germany
BASF, Ludwigshafen, Germany
BiePack, Denmark
EOS, Planegg
Eurolaser, Seevetal
GEISS AG, Germany
IAI, Netherland
4JET Technologies GmbH, Germany
Lasercomb, Notzingen, Germany
Lüscher, Great Britain
Rüggeberg, Hermeskeil, Germany
Saueressig, Vreden, Germany
SEI Laser, Germany, Italy
StorkPrints, Austria

USER REFERENCES

(abridged version)

Benecke-Kaliko AG
BERRY FLOOR nv
Breyer GmbH, Singen, Germany
Forster, Austria
GESA, Dreieich, Germany
Good Year, France
Gutjahr, Wendlingen, Germany
IDS, Grevelsberg, Germany
Inometa, Herford, Germany
Kersten GmbH, Rees, Germany
Kohlpharma, Merzig, Germany
Laser Zentrum Hannover e.V., Germany
Laslo, Sternenfels, Germany
Marbach, Heilbronn, Germany
Olympus, Freiburg, Germany
OTIS, Stadthagen, Germany
PIM-Industrie, France
RAFI, Berg, Germany
Roche Diagnostics GmbH
Rüggeberg, Hermeskeil, Germany
Dr. Schneider, Kronach, Germany
Swarovski, Austria
TANNPAPIER Ges.m.b.H.
Tetra Pak SA
Voest Alpine Europlatinen GmbH
VW, Wolfsburg, Germany
ZumTobel Staff, Austria

