



A Donaldson Company

A WORLD LEADER IN FUME
EXTRACTION TECHNOLOGY

BOFA laser distributor conference 2021: Q&A

Thank you to everyone who posted questions during our conference. We have supplied the questions and answers here:

The need for fume extraction

What advice can you give for a PVC application where the output of filtered gases has caused rust within two weeks?

We would need to understand more about the process to get a better diagnosis on this so please get in touch with your BOFA account manager.

If the rust is inside the laser enclosure then increasing the flow rate can minimise this. You should also look at the surrounding environment as many PVC applications are lasering onto extruded pipe. The extruder can generate HCl fume, is often right next to the laser process and normally doesn't have any extraction on it (there may be opportunity for another sale there).

When lasering on PU / leatherette type of materials, can you extract things like chloride?

PU (polyurethane) doesn't contain chlorine in its chemical structure so we would need a better understanding of where this is coming from. BOFA doesn't currently have a suitable sensor for chlorine so we encourage you to fit your BOFA with an exhaust spigot (please contact us for details on this) and vent the exhaust outside of the building.

Many customers are using higher particulate filters for PVC...how can we make them understand the concerns of the operator more?

The material safety data sheet (MSDS) for the PVC is often a good place to start. In section 10.6 of this it will list the hazardous decomposition products where hydrochloric acid should be listed. Once this is established you can look up the occupational exposure limit for hydrochloric acid, see that it's very low and show that it would almost be impossible to comply with this without a specialised extraction system.

Can we use a BOFA product for nitric acid fumes application?

BOFA doesn't currently have a solution for nitric acid.

Legislation

Is it a legal requirement to have extraction?

In some countries there is an explicit requirement for extraction, but in many the legal requirement is to meet the Occupational Exposure Limits (OELs). The best way to do this is normally to use an extraction system.

Are there any regulations and legislation in the UK / EU for 3D printing?

3D printing regulations will be similar to many other application where it's key to make sure that workers are not being exposed to chemical levels higher than the Occupational Exposure Limits (OELs) set by that country's governing body. Where 3D printing differs is it often gives off nano particles / ultra fine particles which are more harmful but which there aren't specific regulations for (just because you're complying with the regulations it doesn't mean you're protecting your workers). It's worth also noting that in many countries is a requirement not just to comply with the OELs, but to reduce chemical levels as far below them as reasonably practicable.

Where can I look up my country's legislation?

The governing body in your country in charge of occupational health should be able to provide guidance on this. Visit [our legislation page](#) to see some guidance on this, but please bear in mind this is not provided in local language and the legislation may have been updated since this content was written.

Filters

What is the shelf life of filters?

The short answer is that "it depends". There are lots of factors governing filter life, for example what the process is, what type of machine, what the hours of operation are and what materials are being used, so there's no universal answer.

How often should filters be changed?

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What brand of competitor filters can BOFA replace?

We can supply filters for certain Purex extractors - please consult your BOFA account manager.

Why are the sales of pre-filters higher than for combined filters?

Pre-filters protect the main filters, filtering out the larger particulate and so generally need replacing more frequently.

What rating do BOFA filters carry?

BOFA pre-filters are rated using the internationally recognised standard ISO16890. The original standard was EN779, and most of our pre- filters were rated to F8.

HEPA filters are batch tested to capture 99.997% of particles @ 0.3microns.

Can filters be re-used?

No, this is expressly not recommended. Our filters are designed to perform at an optimum level and, once full, will not be efficient. They cannot be cleaned or reused because the regeneration process will reduce the effectiveness and damage the filters. It would also be necessary to dismantle the filters to access the filter media.

Please ensure used filters are disposed of accordingly.

How should used filters be disposed of?

The relevant European directive is 91/689/EC Hazardous Waste. This directive encompasses the European Waste Catalogue under which new clean filters would be classified under item 15 02 03 "absorbents, filter materials, wiping clothes and protective clothing other than those mentioned in 15 02 02". This is a non-hazardous category. However depending on the materials being lasered the fume which is collected in the filters may be considered dangerous, in which case the classification changes to 15 02 02 M. This is potentially a hazardous category depending on the amount of hazardous material in the filter and the risk it poses.

For the pre-filter, the risk involved would normally be R37 "Irritant to respiratory system" caused by the very fine particulate trapped in the filter. However, this only becomes hazardous if more than 20% of the waste (filter + particulate) is made up of the hazardous material, which is unlikely. PVC applications have an added dimension in that HCl is generated and in some circumstances this could potentially form an acid inside the filter which would be difficult to quantify, so we recommend that the filter is treated as a hazardous waste with a potential R34 corrosive risk.

The combined filter needs to be considered in the same way with the risks being different for different materials. Most applications will be non-hazardous because the percentage of any hazardous material is likely to be below the threshold level. Again, for PVC and other polymers which generate highly toxic gasses, it is safest to treat the filters as hazardous waste with a toxic risk.

Extraction system performance

If we install an exhaust system, can we give a guarantee that all limits will be met?

We would need to understand more about the application. But when installed correctly with the correct airflow, capture device positioning and correct filters, BOFA provides the best chance of reducing limits to a safe level.

In the iQ download data, what is the difference between alarms, faults and info?

Alarms relate to alerts, for example, filter blocked or motor failure.

Faults are internal faults on the PCB system as it self-monitors its health.

Info provides BOFA with information on the unit status, for example, in standby, running etc.

What is the typical air volume and static pressure required for capturing laser marking fume, assuming the BOFA unit is installed one metre away from the laser machine?

Air speed, rather than volumetric air flow, is the key factor for capturing laser fume. The UK guidelines (found in HSG258) say this should be 0.5-1 m/s. Once we know this and the distance to the nozzle or size of enclosure, then the required air flow and, therefore, correct extractor can be determined.

What is the maximum length of hose that can be used with an AD Oracle iQ?

BOFA typically recommends a maximum length of 10m hose. But, the shorter the better. If you have a requirement for longer hose runs then please contact BOFA for advice on this.

Applications

How can we deal with precious metals, such as gold and silver, used in laser marking and laser cutting processes?

BOFA's [AD GoldSEAL+ Cyclone](#) is perfect for this industry. It collects the precious metal particulate in the cyclone for easy recovery of the valuable material. The filter is also incinerable for metal recovery.

How long should a PrintPRO be left running during manual painting of a surface, to ensure the evaporated solvent is extracted?

This depends on the paint used and how long it takes to cure. As a rough test, if you can still smell the paint then the extraction should be on (and possibly for longer).

What is recovery percentage for precious metal?

All particulate within the system could potentially be recovered as the hoses can be cleaned out. The cyclone collection pot can be emptied and the filter can be burnt to leave behind the precious metals.

Are there any new hazardous materials that people are now commonly lasering?

New materials are always being used on laser processes. We have seen a significant increase in the use of fibre lasers which has led to an increase in lasering metals and, therefore, the incidents of fire.

PRODUCTS

Inline filters (ILF)

Why is the ILF 300 / 600 filtration from top to bottom?

As the ILF 300 / 600 contain open frame bag filters it needs to be top down to ensure that all particulate is kept in the bag filter. If you require a reverse flow ILF then the ILF 1000 is perfect for this.

Are ILF products compatible with PVC? Does using them induce a pressure drop?

The ILF range is not compatible with PVC applications, you will need to use the AD PVC iQ product for this. The ILF products will increase the pressure drop on the system by an extremely low amount when new.

Fire mitigation

What is the difference between a Spark Arrestor 2 and a FireBOX, because both deal with hot particulate after laser processes?

The main differences between the two products are that the Spark Arrestor 2 should be used to prevent sparks or embers from entering the extractor. The FireBOX should be used on particulate where there is history of fires, or where the particulate is pyrophoric.

The Spark Arrestor 2 is a preventative device which reduces the risk of a fire occurring while the FireBOX is a reactive device that reduces hazard if a fire does occur. As one device assesses the risk and the other, the hazard, they are different approaches to the same problem.

Will the Spark Arrestor 2 and the FireBOX automatically stop the production line?

They have the ability to yes, if your BOFA extractor is interfaced with your laser via the filter signal option.

If I highlight an opportunity to you, how do you go about deciding whether to implement? How long may this take?

Our product managers will first go through a business case review process. Within this process they look at the ability for BOFA to undertake and complete the opportunity well; the cost; the timeline; and whether the new capability fits with the range. The time to complete is opportunity-dependant. A decision is then made off the back of the business case review whether to progress. This decision is communicated to the originator of the opportunity.

Is it possible to use the Spark Arrestor 2 and the FireBOX together?

Yes, this is possible and is the configuration that some customers already have installed.

These devices can be installed individually or together, depending on the user's risk assessment, as well as being retrofitted to existing systems. The Spark Arrestor 2 and FireBOX require an extractor to function and are only compatible with certain extractors so please contact your BOFA account manager for more information.

Can you fit a Spark Arrestor 2 and FireBOX to a competitor extraction system?

No, this is not possible as it hasn't been tested in this configuration and the protection and outcome cannot be guaranteed.

Are you planning to remove any of your products from your laser range?

We have no definitive plans to remove any of the current product line. We do, however, regularly review our product range to ensure BOFA remain market leaders. As per our obsolescence process, any change to the product line will be communicated far in advance to help you prepare for any future transition.

Additive manufacturing / 3D printing

How do the larger 3D extractors connect to the printers?

3D extractors come in all shapes and sizes. BOFA offer a great range of off-the-shelf accessories. Additionally we have CAD modelled universal capture devices available to download and print. We also offer a design service to develop custom ports for 3D printers. Please get in touch so we can give you a solution to enable extraction today.

Will there be a range of different sized sealed extractors?

Yes, we will be bringing a range of different sized extractors to the market. We have begun with the AM 400, which is currently being tested by customers worldwide. Feedback from this will guide us on our next release, with the end goal being a portfolio which can cater for all printer sizes.

Sales

Are you watching the arrival of Chinese products on the European market?

We monitor all markets we operate in and the competing products. Clearly there are a number of products emerging in these markets but as yet they do not conform to European standards and compliance.

How quickly can you ship filters and spare parts?

Typically we ship spare parts and consumables (filters) within three days at receipt of order.

If a customer places an order direct with BOFA, how do you work with your distributors?

As a business we are not set up to supply end-users. Our proven successful model and company philosophy is to work with OEMs, OEM distribution partners and specialist / broadline distributors and NOT end-users. We pass all (where identified) enquires we receive to the supplier of the original extractor or distributor.

Is it more cost effective to order filters in bulk?

Yes - we are happy to advise the optimum shipping quantity and the most economic method of shipment.

LOGISTICS / DISTRIBUTION / BREXIT

Do you sell on EXW term? Or FCA term?

No - the current standard BOFA shipping term is CPT.

With the Brexit issue, can we use our courier account for the shipments or they will continue managed by BOFA?

We can only facilitate DHL or TNT collections. If our customer has an account with either of these then we can arrange for small parcel collections, but no freight.

Where does the Logistics Manager's role fit in the overall supply chain for BOFA?

As the Logistics Manager, Graeme is responsible for moving everything out of and in to the business. Our strong team bring in raw materials from all around the globe and feed that just in time to our manufacturing department. With 90% of our business being global, covering over 65 countries, the outbound is just as busy to keep things flowing out working closely with our preferred logistic partners.

Support

What distributor training is available?

We have a wide variety of training programmes available through the BOFA Academy. If they are not appropriate for your business, we can tailor a training session to you. Contact our Head of Learning: academy@bofa.co.uk

Can we appear on your website?

Yes, we have a section dedicated to our authorised distributors, showing logos and contact details. You'll find that by clicking on the green 'How to buy BOFA' button at the top right of the website. If you can't see your logo there, get in touch with your account manager to see if you qualify.

What marketing support material is available and where can we get it?

Please refer to our resource portal within our website for videos, datasheets, user manuals, filter specification sheets and trouble shooting guides.

Please refer to useful links for details of other resources available online. If you require hardcopies of brochures, contact your account manager.

There are lots of other possibilities so please get in touch and we can see how we can help you.

USEFUL WEB LINKS

BOFA resource portal registration:

bofainternational.com/en/customer-sign-up/

You'll receive login details within one working day – don't forget to check your spam / junk folder!

If you can't remember your password:

Click on the 'Forgotten password?' link underneath the login area.

If you can't remember your username:

Email marketing@bofa.co.uk

Newsletter signup:

bofainternational.com/en/news/#sign-up

Online brochures:

Product brochure: issuu.com/bofa-international/docs/bofa_product_brochure

Laser brochure: issuu.com/bofa-international/docs/bofa_laser_product_brochure

Electronics brochure: issuu.com/bofa-international/docs/bofa-electronics-brochure

If you require hardcopies, please contact your account manager.

Product photos:

flickr.com/photos/bofainternational/albums

Videos, including FireBOX and Spark Arrestor 2:

bofainternational.com/en/support/videos/

Please scroll the videos to find the one you want to watch!

Training

BOFA Academy: bofainternational.com/en/portal/bofa-academy/

Make sure you've signed up for the portal first!





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