



**BARCELONA INSTRUMENTS
ELECTRONICS, S.L.**

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A Donaldson Company

A WORLD LEADER IN FUME
EXTRACTION TECHNOLOGY

ADDITIVE MANUFACTURING



THE QUEEN'S AWARDS
FOR ENTERPRISE:
INNOVATION
2017

Laser

Electronics

Printing
& 3D Printing

Additive
Manufacturing

Mechanical
Engineering

Dental

Pharmaceutical
& Medical

Beauty

BOFA INTERNATIONAL IS A MULTI AWARD-WINNING WORLD LEADER IN FUME EXTRACTION AND FILTRATION TECHNOLOGY.

We design, develop and manufacture systems for a wide range of industrial sectors and applications.

Our products ensure operator safety by capturing harmful dust and fumes which are generated during industrial processes while minimising disruption to production.



ADDITIVE MANUFACTURING IS A **GROWING INDUSTRY**

With more affordable solutions on the market, additive manufacturing (AM) is rapidly becoming part of every day small scale and mass manufacturing.

But with new processes come new risks...and new requirements for safe and efficient extraction and filtration – to protect the equipment; the process; and the user.



THE DANGERS OF ADDITIVE MANUFACTURING

As AM is still relatively new, there is little research to date showing the true impact of the different processes. There are many consumables and equipment factors that can influence emissions, including machine design and set up, and operating temperature, as well as additives, colourants and composition of materials used.

Since AM processes involve high temperatures, melting and sintering, it is likely that they emit a wide range of pollutants and emissions into the surrounding air. Pre and post-processing also present the same risks:

	POLLUTANT	HAZARD
	Macro dust , released during handling of powder materials and finishing.	Contamination of machinery and products; damage to respiratory system.
	Ultrafine particles (UFP) in the Nano particle size range (< 100 nm - too small to be seen by the naked eye) – emerges from melting processes.	Damage to equipment when powder adheres to machinery and products; risk of fire and explosion; damage to internal organs.
	Solvent vapours , released during outgassing of liquid synthetic resin and during cleaning of products.	Eye damage; respiratory and nerve poisoning.
	Noxious gases , released when heating powder materials during manufacturing processes.	Damage to products through contamination of powder materials and liquid synthetic resins. Some plastics can generate carcinogens and toxins.
	Foreign particles , particulate in the air.	Damage to products through contamination of powder materials and liquid synthetic resins during manufacture.
	Oxygen in inert gases, accumulates in the inert gas atmosphere during processes under protective gases.	Damage to product caused by unwanted oxidation processes.
	Air humidity , common in non-air-conditioned rooms.	Impairs quality of stored material powders.

THE IMPACT OF **POOR** VENTILATION OR EXTRACTION

PRODUCTIVITY AND QUALITY

Uncontrolled fumes can negatively impact machinery efficiency and increase the risk of contamination.

The prolonged release of sticky plastic droplets from the machine's process can lead to a build up of material on the machine's moving parts, requiring additional maintenance, down time and potentially causing reliability issues.

OPERATOR'S HEALTH

Human exposure to UFPs can be damaging to health and lead to adverse acute and chronic health concerns.

ARE YOU **PROTECTED?**

Since 3D printing progressed into AM, the requirement for good fume extraction and filtration has become more important. The development of new and innovative AM processes has created the challenge to find the right form of fume control for each one. Added to this, extraction systems are often an after thought once an AM system has been purchased – if they are even considered at all.

Minimising or eliminating contaminants is essential to ensuring optimum machine performance and reducing the amount of cleaning requirements and reducing the risk of loss of product.

The use of an effective fume extraction and filtration system protects the AM equipment, maintains reliability of the machine and safeguards the operator from potentially harmful fumes.



BOFA HAS THE ANSWER

With over 30 years' experience in the development of award winning fume and dust extraction and filtration systems for a wide range of air contaminant processes, we have the cutting-edge technology that is proven to meet these challenges. As well as our own R&D team, we also work with leading academic

institutions to get the latest insights into new markets and applications.

We offer a range of different sized systems to suit small processes up to large or multiple units, designed to integrate into any production environment.

PRE AND POST SALES CARE

Ensuring you have the right solution for your application is as important for us as it is for you. Our expert engineers work directly with customers across the globe to understand their processes and either match one of our existing systems; adapt a system; or create something brand new.

Our after-sales team ensure that you will get all the customer support and technical help you need every step of the way.

INTELLIGENT (iQ) OPERATING SYSTEM

Many of our systems feature our award winning Intelligent (iQ) Operating system which brings multiple performance enhancements for higher efficiency of extraction, individual status monitoring and integral design features that combine to deliver a lower cost of ownership.

ACCESSORIES

We have a range of inline filters, arms, desk top accessories, pipework and cooling units to help optimise performance where it's needed.

WORLD LEADING TECHNOLOGY

All of our systems combine maximum operator and capital equipment protection with low running costs:

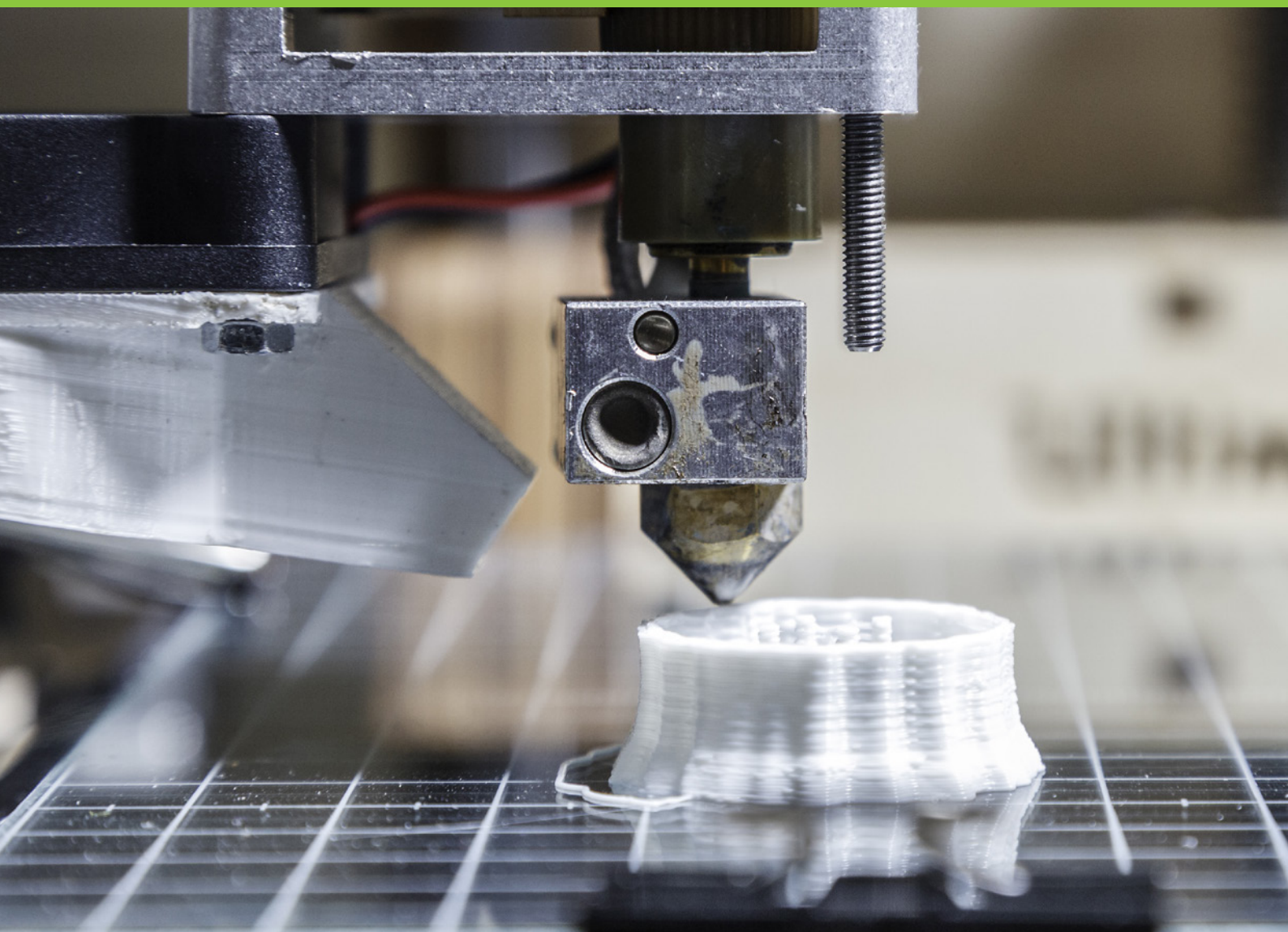
- ✓ **Easy** to operate
- ✓ **Low** maintenance
- ✓ **Large capacity** H14 (ISO En 1822) HEPA filter with 99.997% efficiency at 0.3um – as recommended by the UK Health & Safety Executive for Nano particles
- ✓ **Powerful** vacuums
- ✓ **Low** noise levels
- ✓ **Deep bed** activated carbon filters to remove organic gases and vapours
- ✓ **CE compliant**



FUSED FILAMENT FABRICATION (FDM)



POLYMERIC DROPLETS AND PARTICLES,
VAPOURS AND NANO PARTICLES.



OUR LEADING
TECHNOLOGY



iQ
Intelligent (iQ)
Operating System



DeepPleat
DeepPleat pre filter



DeepPleat DUO
DeepPleat DUO
pre filter



HEPA
HEPA filter



AFC
Automatic flow
control technology

FUSED FILAMENT FABRICATION (FDM)

Polymeric droplets and particles, vapours and Nano particles.

SMALLER INDIVIDUAL AM UNITS



3D PrintPRO 2

bofainternational.com/3dprintpro-2



3D PrintPRO 3

bofainternational.com/3dprintpro-3



3D PrintPRO 4

bofainternational.com/3dprintpro-4



LARGER AM UNITS OR MULTIPLES



PrintPRO Universal

bofainternational.com/printpro-universal



PrintPRO 500 iQ

bofainternational.com/printpro-500-iq



PrintPRO 1000 iQ

bofainternational.com/printpro-1000-iq



PrintPRO 1500 iQ

bofainternational.com/printpro-1500-iq



PrintPRO 2000 iQ

bofainternational.com/printpro-2000-iq



RFA
Reverse flow air
technology



ACF
Advanced carbon
filter technology



MVS
Multi voltage
sensing unit



PATENTED
Patented
technology



PROTECT
ProTECT service
plan

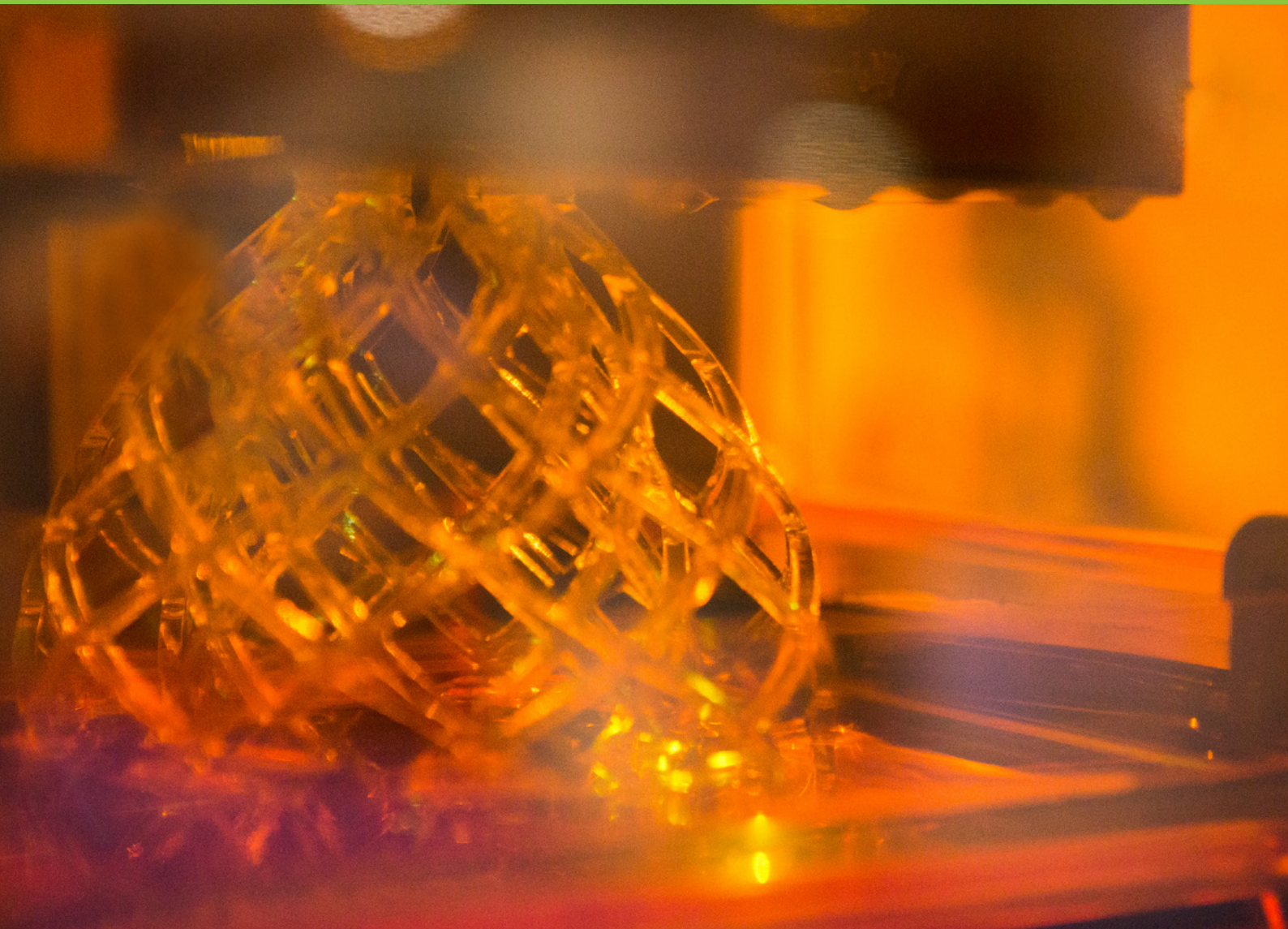


SureCHECK
SureCHECK quality
standard

STEREOLITHOGRAPHY AND POLYJET SYSTEMS (SLA)



POLYMERIC DROPLETS, PARTICLES AND VAPOURS.



OUR LEADING
TECHNOLOGY



iQ
Intelligent (iQ)
Operating System



DeepPleat
DeepPleat pre filter



DeepPleat DUO
DeepPleat DUO
pre filter



HEPA
HEPA filter



AFC
Automatic flow
control technology

STEREOLITHOGRAPHY AND POLYJET SYSTEMS

Polymeric droplets, particles and vapours.

SMALLER INDIVIDUAL AM UNITS



3D PrintPRO 4

bofainternational.com/3dprintpro-4



LARGER AM UNITS OR MULTIPLES



PrintPRO Universal

bofainternational.com/printpro-universal



PrintPRO 500 iQ

bofainternational.com/printpro-500-iq



PrintPRO 1000 iQ

bofainternational.com/printpro-1000-iq



PrintPRO 1500 iQ

bofainternational.com/printpro-1500-iq



PrintPRO 2000 iQ

bofainternational.com/printpro-2000-iq



RFA
Reverse flow air
technology



ACF
Advanced carbon
filter technology



MVS
Multi voltage
sensing unit



PATENTED
Patented
technology

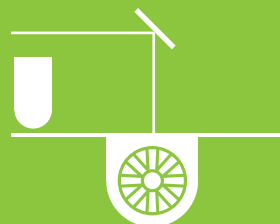


PROTECT
ProTECT service
plan



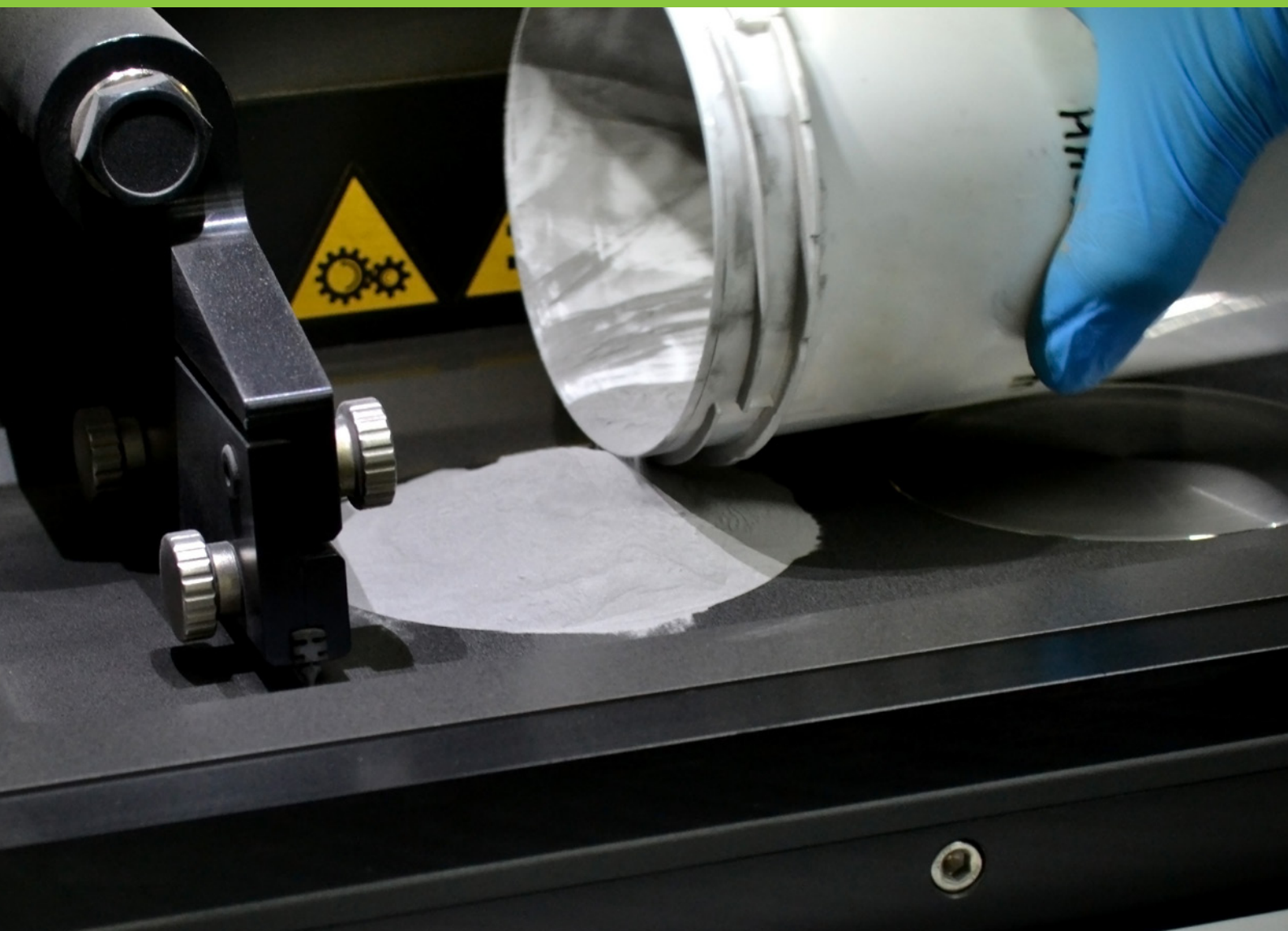
SureCHECK
SureCHECK quality
standard

SELECTIVE LASER SINTERING



POLYMERIC DROPLETS AND PARTICLES AND VAPOURS
FROM PLASTICS PROCESSING.

SOLID UNOXIDIZED PARTICLES FROM METALS AM
PROCESSES UNDER INERT GAS.



OUR LEADING
TECHNOLOGY



iQ
Intelligent (iQ)
Operating System



DeepPleat
DeepPleat pre filter



DeepPleat DUO
DeepPleat DUO
pre filter



HEPA
HEPA filter



AFC
Automatic flow
control technology

SELECTIVE LASER SINTERING

Polymeric droplets and particles and vapours from plastics processing.
Solid unoxidized particles from metals AM processes under inert gas.

SMALLER INDIVIDUAL AM UNITS



AD Access

bofainternational.com/ad-access



AD 350

bofainternational.com/ad-350



AD Oracle iQ

bofainternational.com/ad-oracle-iq



LARGER AM UNITS OR MULTIPLES



AD 500 iQ

bofainternational.com/ad-500-iq



AD 1000 iQ

bofainternational.com/ad-1000-iq



AD 1500 iQ

bofainternational.com/ad-1500-iq



AD 2000 iQ

bofainternational.com/ad-2000-iq



Additional inline filter units with closed circuit filtration for the handling of pyrophoric dust in inert atmospheres.



RFA
Reverse flow air technology



ACF
Advanced carbon filter technology



MVS
Multi voltage sensing unit



PATENTED
Patented technology



PROTECT
ProTECT service plan



SureCHECK
SureCHECK quality standard

POST PROCESSING



DUSTS AND POWDERS FROM MECHANICAL FINISHING,
SOLVENTS (IPA) FROM VAPOUR FINISHING AND
SUPPORT MATERIAL REMOVAL.



OUR LEADING
TECHNOLOGY



iQ
Intelligent (iQ)
Operating System



DeepPleat
DeepPleat pre filter



DeepPleat DUO
DeepPleat DUO
pre filter



HEPA
HEPA filter



AFC
Automatic flow
control technology

POST PROCESSING

Dusts and powders from mechanical finishing, solvents (IPA) from vapour finishing and support material removal.



FumeCAB 600

bofainternational.com/fumecab-600



DustPRO 400

bofainternational.com/dustpro-400



DustPRO Universal

bofainternational.com/dustpro-universal



DustPRO 500 iQ

bofainternational.com/dustpro-500-iq



DustPRO 1000 iQ

bofainternational.com/dustpro-1000-iq



DustPRO 1500 iQ

bofainternational.com/dustpro-1500-iq



3D accessories

bofainternational.com/3d-accessories



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Reverse flow air
technology



ACF
Advanced carbon
filter technology



MVS
Multi voltage
sensing unit



PATENTED
Patented
technology



PROTECT
ProTECT service
plan



SureCHECK
SureCHECK quality
standard

Or work with BOFA to create the perfect solution for you...

The additive manufacturing industry is moving at a rapid pace with new materials and processes being tested and implemented all the time.

We already work with AM companies to create personalised and bespoke solutions for their 3D printers, whether they are stand alone; ride on; or integrated solutions.

PERSONALISED SOLUTIONS

Product customisation

Speak to our experts about your specific requirements and how we can work with you to create the perfect system to complement your product.

- Sockets and connectors
- VOC sensor
- Compressor
- Air conditioner

Customisable controls and communications

- Universal voltage system – one part number worldwide
- Auto start/ stop
- Overrun
- Warnings and alarm outputs

Customised branding

Standard BOFA unit
+ product branding
+ your specific paint colour
+ accessories
+ spare filters
+ hose kit

BESPOKE SOLUTIONS

Unique products

Working with BOFA you'll have access to our unrivalled expertise to develop bespoke, personalised solutions.



Unit, filters and accessories, specific to your requirements.

WHAT'S YOUR **ADDITIVE** MANUFACTURING PROCESS?

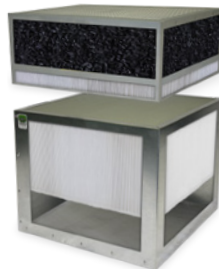
Speak to our experts about how we can ensure you have the right unit for your process.

- Functional prototyping
- Electron beam melting
- AM ancillaries extraction (powder handling)
- Digital light processing
- Continuous digital light manufacturing
- Robotic additive manufacturing
- Selective lamination composite object manufacturing
- Binder jetting
- Polymer laser sintering
- Jet fusion 3D printing
- Stereolithography

FILTER TECHNOLOGY

3 stage filtration

- Patented DeepPleat DUO pre filter
- HEPA filter
- Advanced Carbon filter



ACF: Advanced carbon filter



ACF assures safe capture and removal of hazardous fumes. Contaminated air must remain in contact with the carbon bed for a period of time sufficient to ensure that no contaminants or odours are emitted ('dwell time'). Our design considers the balance between airflow rates and the type, depth and surface area of the carbon used to ensure suitability for the contaminants associated with the application and to ensure appropriate dwell times are achieved.

HEPA filter



Removes 99.997% of particles at 0.3 micron in size.

DeepPleat DUO pre filter



Our patent-protected DeepPleat DUO pre filter technology is designed to maximise filter life. It incorporates a large capacity drop-out chamber within the filter. Above this chamber is an impressive surface area to deal with high volumes and variety of particulate, ensuring optimised performance and filter life.

SELECTIVE LASER SINTERING



Spark Arrestor

- Inline pre filter
- Prevents sparks reaching extractor



FireBOX MA and GA

- Inline pre filter
- Detects fire and suppresses
- Suitable for general applications (GA) and metal applications (MA)



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