

The network of specialists, for **AM professionals**



The **R**-Evolution in the world of sandblasting

IntegrAM is the cutting-edge technology that deals with integrating post-processes and surface finishing related to AM (acronym for "Additive Manufacturing"). We integrate our knowledge in the field of surface finishing, with an interdisciplinary approach and a spirit of innovation, efficiency and automation of post-process technologies. **IntegrAM** is a network of specialists who have created a **program of innovative, original and competitive solutions for AM professionals**.

Integrated post processing and finishing technology for **AM**





VibroCHORREADO

TriboSABLAGAGE

VibroBLAST

VibrationSTRAHLEN

VibroSABBIATURA

VibroJATEAMENTO

IntegrAM introduces a new surface finishing technology: the **VibroBLAST** technology, result of three patent applications, of about eight years of research activity, in addition to the close collaboration with sandblasting, suction and air filtration specialists. Everything, strictly "made in Italy".

A patent on the **VibroBLAST** process, a patent on the specific use for the **Additive Manufacturing** sector, a patent dedicated to the special QuattroFinish or **QF** media.

A line of solutions dedicated to the **POST PROCESSES** of Additive Manufacturing, developed with careful experimentation and specific tests for 3D printing applications.



¿Donde VibroCHORREADO?

Où TriboSABLAGAGE?

Where VibroBLAST?

Wo VibrationsSTRAHLEN?

Dove VibroSABBIAATURA?

Onde VibroJATEAMENTO?

Although this technology contains ALSO solutions dedicated to the POST PROCESSES of Additive Manufacturing, it offers advantages to the most varied sectors of use, both for metal components and in polymers and also in other materials.

The next pages show some examples of component types and related additive and subtractive manufacturing techniques - the components shown are for guidance only and Rollwasch makes its own test laboratory available for practical demonstrations.



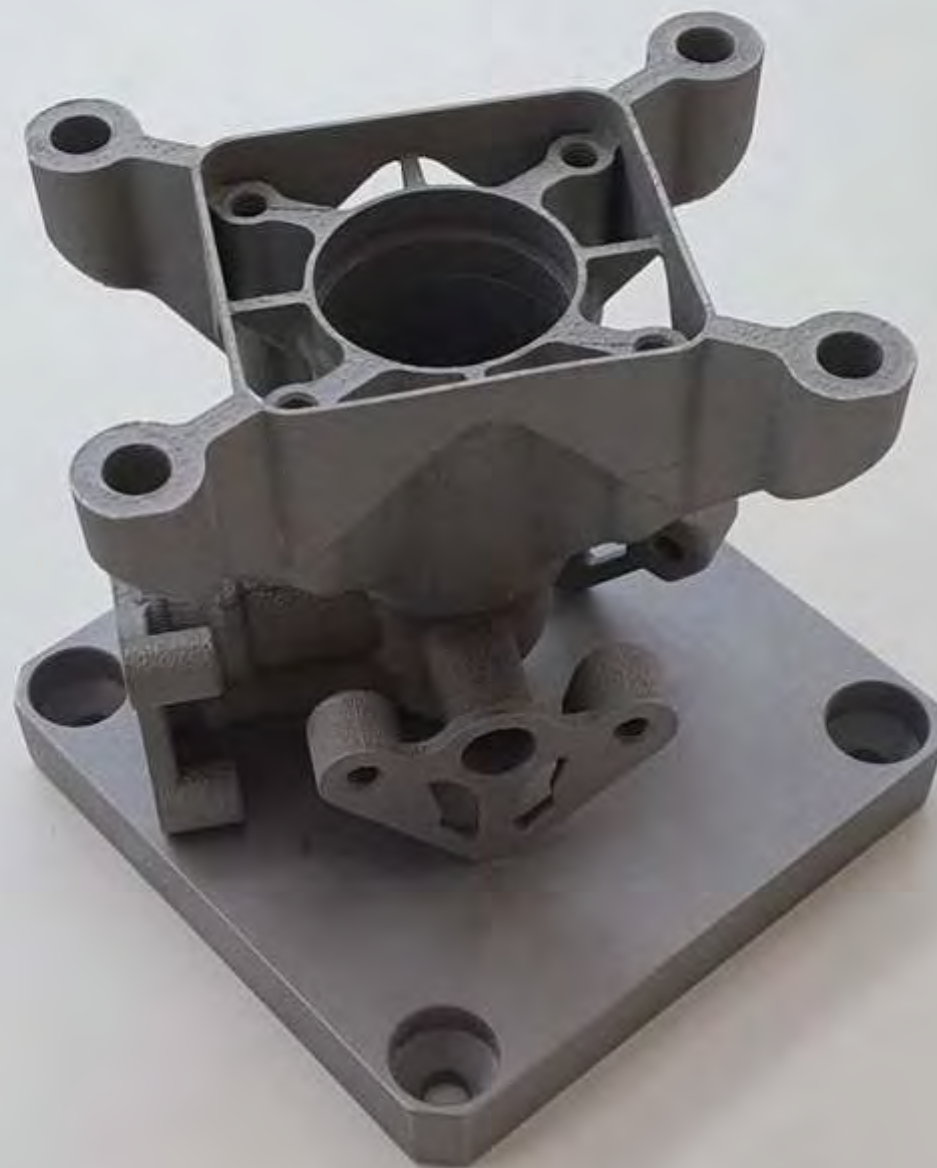
ADDITIVE MANUFACTURING

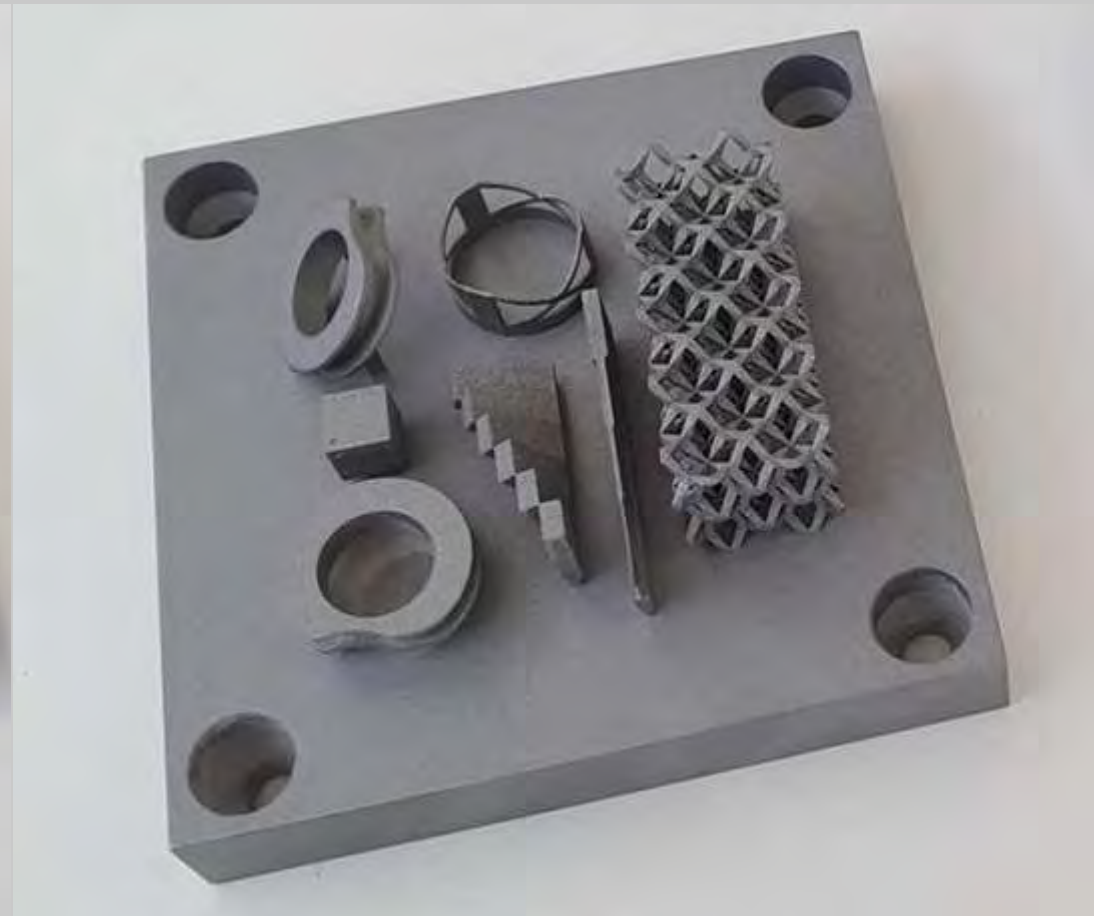
POLYMERS - PA12

VibroBLAST AIR - VBA-DP















¿Por qué **VibroCHORREADO?**

Pourquoi TriboSABLAGE?

Why VibroBLAST?

Warum VibrationsSTRAHLEN?

Perché VibroSABBIATURA?

Porque VibroJATEAMENTO?

What distinguishes the **VibroBLAST** process compared to a normal sandblasting or vibratory finishing process? And why choose this «hybrid» process, or this technology resulting from the synergy of two well known techniques?

This tutorial will illustrate, in the next slides, at least 10 of the most important reasons for choosing this type of technology instead of those notes. In any case it is very important to point out that, although this technology ALSO contains solutions dedicated to **POST PROCESSES and FINISHING of Additive Manufacturing**, it offers advantages to the most varied sectors of use, both for metal components and polymers and also in other materials, not necessarily manufactured in Additive, but die-cast, injection molded, milled, laser cutting, water cutting, oxy-fuel cutting, hot stamping, forging, etc.

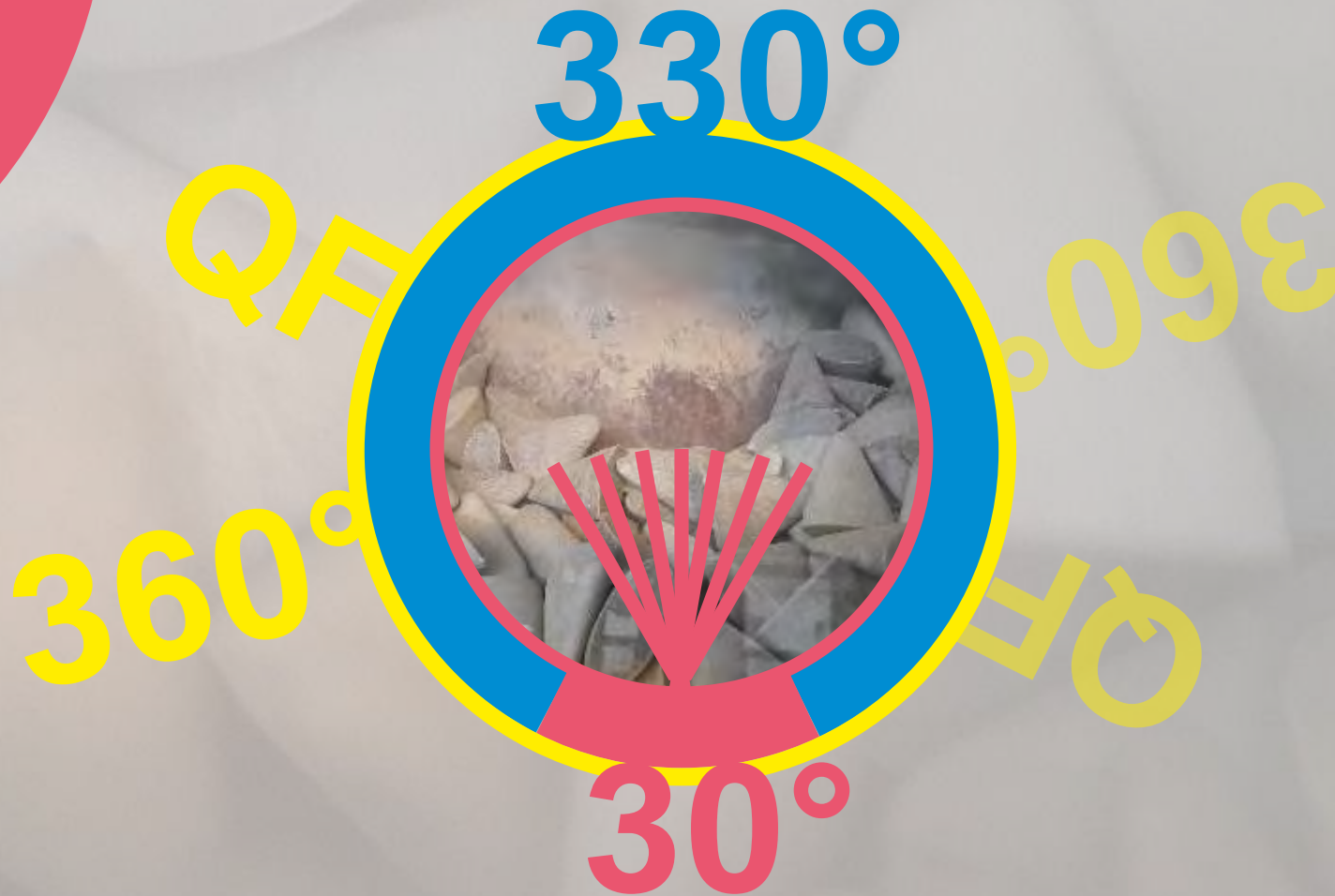
1



The first element of choice is to use **VibroBLAST** technology for mass finishing processes of surfaces, whether metallic, plastic or of any other nature. Some components that must not receive blows or dents, are made by hand one by one with the classic blasting booths with gloves, pistol etc. Other components, sandblasted with rotating or barrel-driven machines, are limited to those components that are not altered or damaged by the movement of the parts against one another.

The components treated with **VibroBLAST** processes, thanks to the presence of special resilient vibratory finishing media (QF), offers excellent results.

2



In a **VibroBLAST** process, with vibro-sandblasting items, sandblasting media type «white corundum 60" and vibrofinishing media type QF70EN5 (plastic ellipsoid formulation N5, slightly elastic) at each complete turn of the pieces in the circular tank, corresponding to 360 °, for about 30 ° they are hit by the blasting jet, while for the remaining 330 ° the pieces are finished by the same corundum conveyed by the QF70EN5 vibratory finishing media which, in turn, become impregnated with abrasive and continue to transport it onto the surfaces of the workpieces. The same thing, where possible, can occur in the case of treatment of a volume of pieces in «piece by piece» mode and without vibratory finishing media, provided that this process does not involve alterations or scratches and dents. The drag and rubbing function of the abrasive on the surfaces of the pieces makes the difference with a normal sandblasting or vibratory finishing process.

3

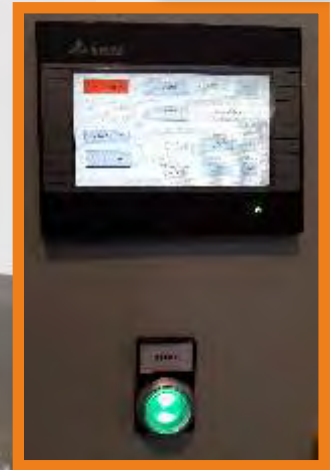


SN
Side
Nozzle

Another reason for choosing a **VibroBLAST** process is determined by the availability of an unprecedented comprehensive range of solutions. The machines have sandblasting nozzles on the corolla - SN (Side Nozzle).

A further choice, within the **VibroBLAST-AIR** range, is possible between machines such as **VibroBLAST AIR DP** (vacuum), and those **VibroBLAST AIR PR** (pressure); this last line of machines offers the possibility of also using metal grits as a "media" for sandblasting / shot blasting;

4



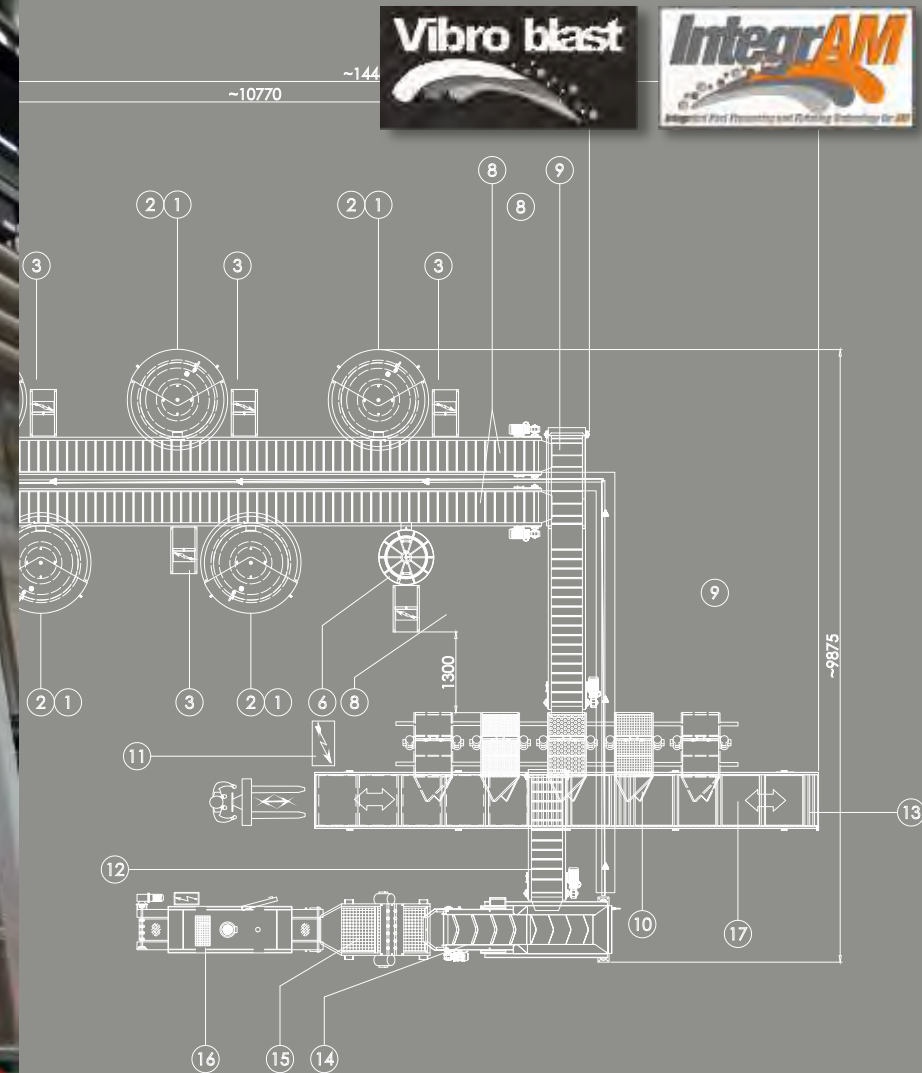
IntegrAM offers VibroBLAST machines with a level of automation suitable for all needs, including **Industry 4.0**.

All **VibroBLAST** series machines are equipped with a microprocessor with color Touch Screen panel and, if required, it is possible to request the optional WiFinishing version, which can be connected remotely and wirelessly with a windows or Android tablet.

All the software loaded on our machines are made internally and, where necessary, can benefit from ad hoc customizations.

The machines for polymers can be completed with antistatic bulbs - optional accessory «**AS**».

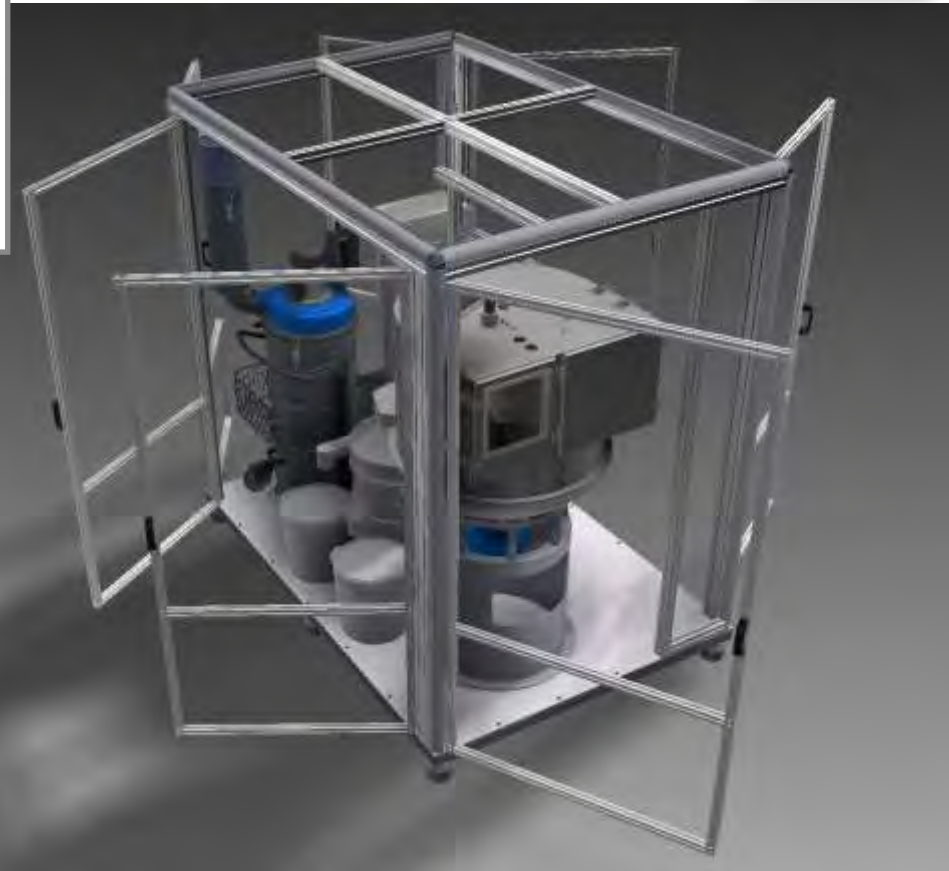
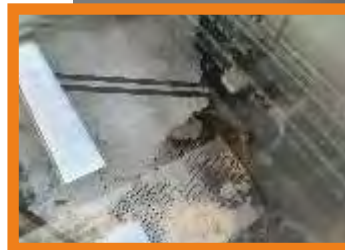
5



At **IntegrAM** we develop even complex engineering solutions, to manage part / media selection operations, automatic reloading (with pneumatic transport devices, for example), media classification (small to medium-large usable) and many other functions with absolute respect for the rules most elementary safety and ergonomics.

Our vibrofinishing media recovery and storage tanks (for example **QF**), complete with highly reliable pneumatic valves, can recharge a **VibroBLAST** machine in a matter of seconds, before loading the pieces to be machined, so as to supply a sort of «air bag» that absorbs during the loading phase.

6



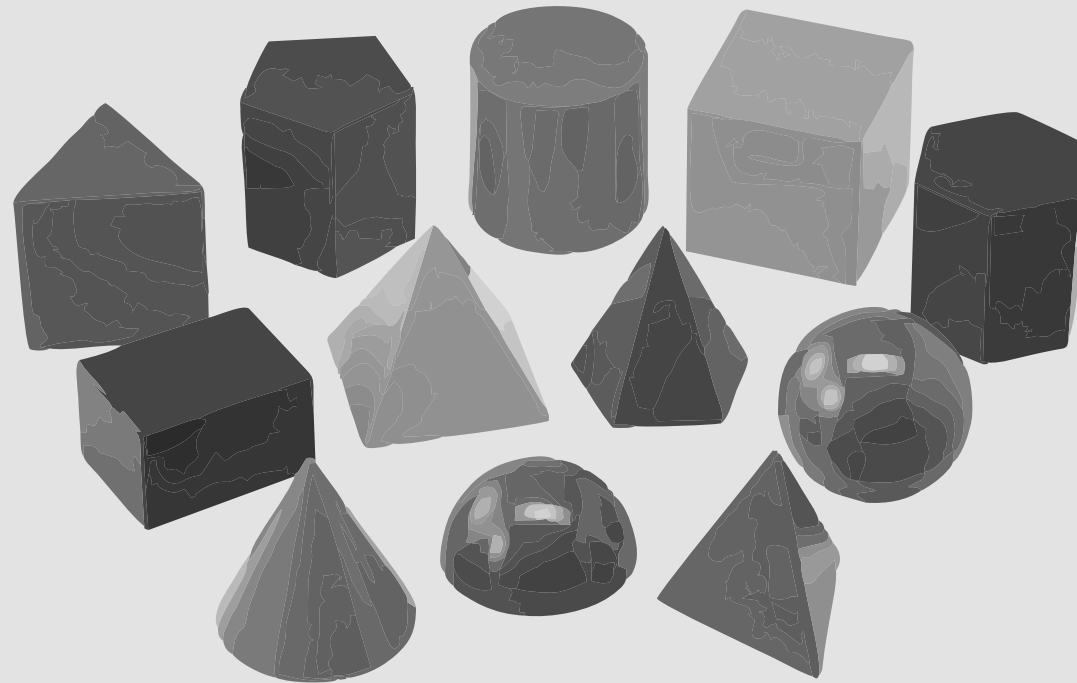
The range of machines **VibroBLAST Air [DP] DCK** is designed to assure a wide **MULTITASKING** process suitable for POST-PROCESS **after** Selective Laser Sintering machines after SLS. The Smart Recovery technology foresees the additive powders recover (in this case polymers), and is specifically designed for Additive Manufacturing. Starting from a SLS cake before the un-packing or de-caking operation, normally made by hand and followed by hand or rotary barrel blasting, the new range of machines **VibroBLAST Air [DP] DCK** can automatically provide:

1. un-packing or de-caking
2. additive powder recover and automatic vibro-selection with possible option of ultrasound, for top efficiency
3. vibro-blasting of the sintered components afterwards
4. if required, additional smoothing of the components

7



3D-MEDIA



A further feature of the patents that allowed the creation of the **VibroBLAST** series of solutions consists of the **PREVENTIVE CONTAMINATION CLINIC PROCESS**. This version of machines allows sandblasting, for example, PEEK components with PEEK powders and with PEEK vibrofinishing media made by the same user, thanks to a library of 3D drawings of various shapes and vibrofinishing media measurements.

This type of process makes it possible to avoid that any material of a different nature from that of the same polymer that makes up the components to be treated, can pollute or be included in the surfaces of the same.

QF-MEDIA

The QF media range is manufactured by Rollwasch in Italy with injection presses that allow obtaining extremely long-lasting media, up to 10-20 times higher than the classic vibratory finishing media such as abrasive plastics and ceramics.

QF-MEDIA

The QF media range represents the future of vibro-blasting processes and the program is constantly evolving.

QF-MEDIA

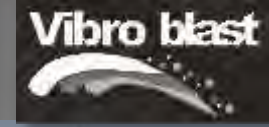
The range of QF media (QuattroFinish - Patent pending - I) includes special compounds based on INERTIAN substances to help reduce the risk of explosion in the presence of metals or explosive substances.

QF-MEDIA

The range of QF media (QuattroFinish - Patent pending - I) includes a growing variety of formulations that allow incomparable performances in the field of vibro-sandblasting processes.

At **IntegrAM** we offer QuattroFinish abrasive and vector preforms, more commonly known as Media QF. These media are available in multiple formulations and compositions and allow the achievement of qualitative goals never known before the birth of VibroBLAST systems. Careful studies and research have led **IntegrAM** technicians to develop unprecedented solutions for both safety and the environment, significantly reducing the production of waste, thanks to the exceptional durability of the Media QF, equal to 10-20 times more compared to traditional plastic or ceramic abrasive media. With the year 2020 new Media QFs are planned with increased densities and completion of geometric shapes and measures.

9

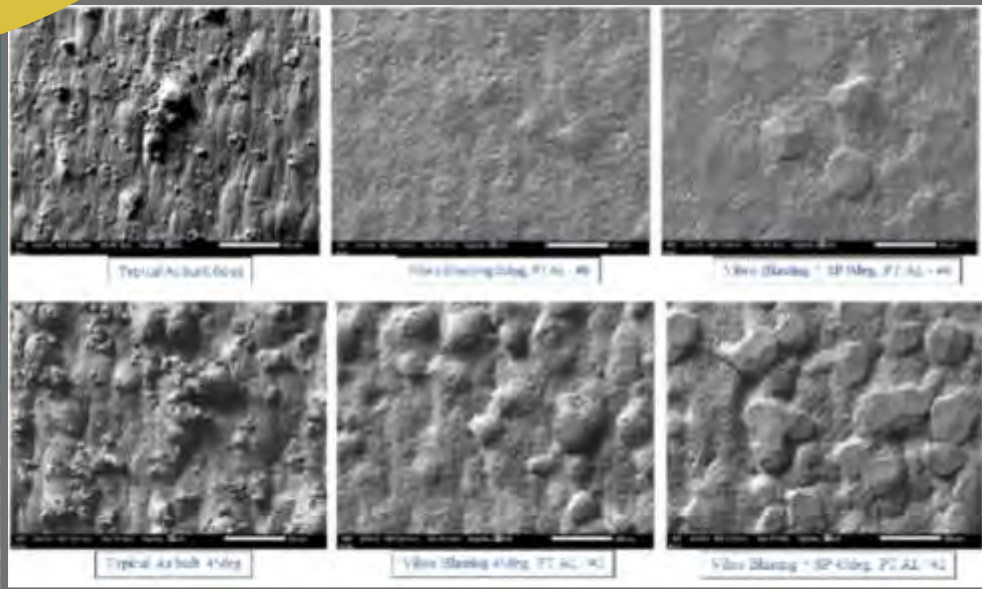


DRAGBLAST DBA-DP-200-6NJW-Shift

The **DRAGBLAST** technology, evolution of VibroBLAST solutions (patent pending), offers a truly new world of potential benefits, mainly thanks to the Carving Finish (Patent pending) range of finishing machines and automatic systems.

The two-sided angular displacement of the complete rotating head of drag finishing machines working with **DRAGBLAST** technology is therefore able to offer unexpected advantages both from the point of view of finishing precision and competitiveness.

10



Very interesting results are emerging from the samples after **VibroBLAST** process and its subsequent combination, limited to a 30 x 30 mm area of **Ultrasonic controlled Shot Peening**. The positive effect was detected with a roughness tester where the surface, already optimized around 4.0 μm RA levels, if sandblasted by hand with the same pressure and the same shot peening media used in the **VibroBLAST** process, resulted in an increase of roughness up to 5.2 μm RA!

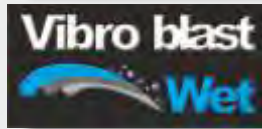
The **USSP** solutions program, - UltraSonic Shot Peening, in this example, is reporting one of the most extraordinary results of multidisciplinary tests run by **IntegrAM** team, with its specialist ultrasonic partners and the laboratory of an aerospace manufacturer.



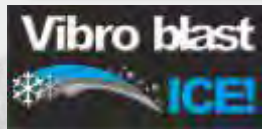
D P V e r s i o n – with vacuum or depression technology, dry, available from 25 litres capacity up.



P R V e r s i o n – with pressure technology, dry, available from 300 litres capacity up.



W e t v e r s i o n - with air pressure technology combined with an abrasive pump. **Expected in 2021.**



N 2 V e r s i o n - with hydrogen technology, available from 50 litres of capacity up. **Expected by 2021.**

Presented in world premiere in June 2019 at 3D Print in Lyon and at the Form Next exhibition in Frankfurt.

Presented in the first half of 2019 at Rollwasch headquarters in Albiate in world premiere.



IntegrAM introduces a new surface finishing technology: the **VibroBLAST** technology, result of three patent applications, of about eight years of research activity, in addition to the close collaboration with sandblasting, suction and air filtration specialists. Everything, strictly "made in Italy". A patent on the VibroBLAST process, ideal for foundry, hot stamping, sheet metal, forging, machining, in addition a product for the specific use in the Additive Manufacturing and in the Medical sectors, a patent dedicated to the special QuattroFinish or QF media. A line of solutions dedicated to the POST PROCESSES of Additive Manufacturing, developed with careful experimentation and specific tests for 3D printing applications.



SPENGLER, a French company founded in 2021 by two Italian engineers who are experts in the design and manufacture of SLS and Additive Manufacturing systems at pre-existing companies. Thanks to decades of consolidated experience in the AM sector, full of specialist and multidisciplinary projects, **SPENGLER** is dedicated to three main themes:

1. Consulting in AM projects
2. Development of "custom" systems and machines
3. Distribution of Post Processing and Finishing Plants

Rollwasch® is an Italian company founded in 1950 in Milan and specialized in surface treatment. Manufacturer of machines and consumer products, Rollwasch® is an **innovative SME**, always engaged in R&D, which in the last decade has developed a series of patents to revolutionize post-processing and finishing in AM. In 2021 he won the first prize in the Innovation 4.0 Award, as part of the 15th edition of the A&T - Automation & Testing Fair, with **VibroBLAST** technology.

Techno Surface is an Italian company founded in 2015 and specialized in various technologies, with **strong convergence towards Additive Manufacturing**. Engaged since its inception in technological consultancy and R&D, it has filed a series of specific patents for post-process applications and surface treatments in AM. These innovations include the **Eco-Sonic 3D ultrasonic cleaning system**, the ecological **Eco-Dyeing** of polymers. Techno Surface is the coordinator of the **IntegrAM** program and network.

IntegrAM stands for "**Integrated Post Process Solutions and Finishing Technologies for Additive Manufacturing**". **IntegrAM** is a brand, a program and a network of companies dedicated exclusively to the specialization of AM. The pillars of the IntegrAM network, in addition to the companies presented aside, are:

1. Multidisciplinary skills
2. Continued dedication to R&D projects
3. Interactivity with competence centers, universities and centers of excellence mainly in Italy and France
4. High coordination of Teamwork

What does **IntegrAM** mean?

IntegrAM stands for "Integrated Post Process Solutions and Finishing Technologies for Additive Manufacturing".

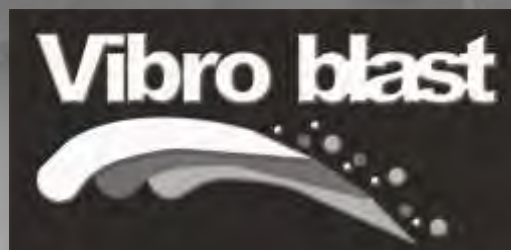
The IntegrAM network is a partnership of specialists, manufacturers, solution developers, specifically dedicated to the Additive Manufacturing sector.

The IntegrAM network is evolving day by day and continuously adding new solutions to offer the best possible program of post processing and finishing technologies, but not only ...

... Get in touch with our sales or technical representatives to find out about the latest up-to-date opportunities.

Many of these solutions are designed by the IntegrAM team and produced in Italy by Rollwasch® Italiana Spa, a manufacturer with over 70 years of experience. Other solutions, services and products offered are produced by specialists under the guidance of the IntegrAM Team, to fully meet the expectations of AM professionals according to international standards.

The network of specialists, for **AM professionals**



The **R**-Evolution in the world of sandblasting

The **IntegrAM** program was born from a network of specialists **designed for AM professionals**



Integrated post processing and finishing technology for **AM**

IntegrAM

The network of specialists, for **AM professionals**

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