

QUALITY OF AIR AND QUALITY OF PRODUCT

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Working in healthy environments has advantages not only for the operators, but also for the quality of the working cycle and of the final product. For this reason a famous manufacturing company has been installing for years on its machine tools specific systems to filter oil mist, smoke and dust.

Protecting the health and safety inside manufacturing companies is a very important fact. The compliance with health and environmental norms in force is essential not only to maintain a high competitiveness in the operative field but also in order to obtain quality certifications. This opinion is shared also by CDS - CAM Driven Systems, a branch of BETTINELLI F.LLI S.p.A. based in Bagnolo Cremasco (CR). CDS deals with the design and manufacturing of cam systems for actuators of complex movements, i.e. rotary, linear, oscillating and cyclic ones.

"Our reality is very flexible and verticalized- says Franco Chiozzi, production manager of CDS - Cam Driven Systems - and its aim is the final customer's satisfaction. Together with the other three divisions we are able to produce internally and to control both manufacturing phases and production schedule. Our production plant has numerous machine tools, whose number, thanks to our continuous expansion, has kept on growing in the last years. We have always equipped our machine tools with systems for the removal and purification of air, which unfortunately had often had problems of functionality, machine down-times and long maintenance times."

The company believes strongly in the quality of the working



Example of an application of an air cleaner ARNO VPF on a machining centre at BETTINELLI S.p.A.



In case of demanding machining processes, the air cleaners ARNO VPF can be implemented with a pre-filtration system.

environment, in the operators' health and wellbeing and in the cleanliness of the production facilities and it can count on completely air-conditioned areas; these conditions participate directly in the realization of a product of as much final quality.

"In such a context – continues Chiozzi – the optimization of air cleaning in the workshop became a necessity deeply connected to our production and our working environment. We have tried to solve these problems by assessing the market and by specifying our particular needs. We therefore turned to AR Filtrazioni, at first testing their products and subsequently extending our cooperation.

The company has indeed been able to guarantee, besides the quality of the product, also a complete, efficient and effective service and since the beginning they have been able to relieve us from everything that was connected or connectable to the purification and quality of the air in our plants.

In other words, we have delegated in outsourcing the control of air quality and health of our production areas."

High efficiency- air cleaning

An important partnership, whose aim is to solve any kind of problem connected to the quality of air, through the installation of specific units, the control and supervising of the performances,

the maintenance and the continuous update of filters with higher performances.

With its main offices in Azzano San Paolo (BG), AR Filtrazioni produces a wide range of air cleaners suitable to remove and purify oil mist and smoke generated by machining processes of machine tools.

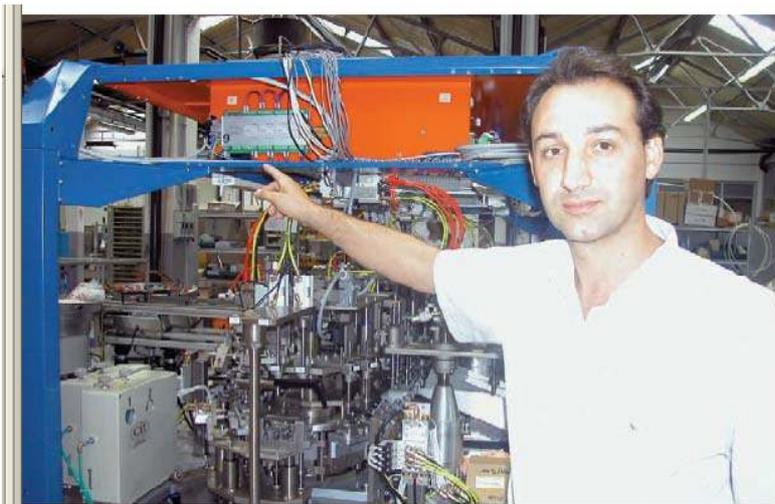
The developed systems are able to purify completely at source machining centres, lathes, grinding machines, laser machines, machines for spark erosion, industrial washing machines and so on.

"We started installing AR Filtrazioni air cleaners in some production areas, and supervised the results achieved, also with the assistance of external certified laboratories for the analysis of the emissions. The absolutely positive results have persuaded us to install these air cleaners on all of our machine tools. The last department to be equipped has been the one for the production with grinding machining processes.

We have received a complete service: from the dismantling of the old air cleaners up to the installation of the new filtering units and their final inspection. We have since obtained the purification of the whole working environment, that has always given us problems. The air-conditioning system needs, especially during the summer months, air filter systems with high performances."



The air cleaners of the series ARNO VF are suitable for the removal and purification of oil mist and dust produced during wet and dry machining processes. Here is an example of an installation on grinding machines.



Eng. Franco Chiozzi, Production Manager at CDS – Cam Driving Systems, a division of BETTINELLI F.lli S.p.A. of Bagnolo Cremasco (CR) – shows a machine of own production.

The first supply of ARPX systems dates back to 1996. Since then other kinds of air cleaners have been bought and amongst them some mobile ones characterized by a high flexibility. In 2000 BETTINELLI started the installation of the ARNO series on machine tools and machining centres. The ARNO series, equipped with a gauge to monitor the filter conditions, was designed to remove airborne pollutants on high-duty production machine tools working on three shifts; for this reason, the unit turns out to be a robust and reliable one. The internal constructive features enable the removal of oil mist, micro-mist and smoke of straight oil (with an air flow rate from 1,000 to 3,100 mc/h) and of water-soluble oil (with an air flow rate ranging from 1,000 to 4,000 mc/h) dust, micro-dust,

obtaining a residual concentration of pollutants in the air inferior to 0.1 mg/mc.

Clean and healthy air even in demanding working conditions

The air cleaners belonging to the range of ARNO VF are suitable in particular for the removal and purification of oil mist and dust generated during wet and dry machining processes. Thanks to their design, they are suitable for purifying particles of different granulometry, simply using interchangeable filters with different degrees of filtration efficiency. They are equipped with High efficiency HEPA filters, up to Class H13, tested in compliance with European Norms EN 1822, suitable for the elimination of micro-dust, micro-mist and smoke up to an absolute level. The unit can be equipped with a drainage for the recovery of re-condensed coolant liquid and, should gas, fumes and odours be present, could also be supplied with activated carbon filter. In case of especially demanding machining processes, these units could be implemented with a pre-filtration system (version ARNO VPF). Robust and reliable, the air cleaners of AR Filtrazioni guarantee a quick and easy maintenance, on the average every 4-5,000 worked-hours, which can be anyhow monitored through a visual detector showing the level of clogging of the filters.



BETTINELLI F.lli S.p.A. is specialised in the production of special assembling machines and of cam units for the transformation of the movement.

From this picture of the ARNO series of AR Filtrazioni we can recognize its various filter-stages:

- 1st Stage: Self-cleaning centrifugal re-condenser**
- 2nd Stage: Filtration by coalescence**
- 3rd Stage: Absolute Filtration with HEPA filter up to H13 – EN 1822**
- 4th Stage: Pre-filtration system - modular, situated beneath the air cleaner, it is suitable for the pre-filtration of large quantities of liquid pollutants, dust and swarf.**



Four division at the service of Automation

Bettinelli F.lli S.p.A. was founded in 1953 by Costantino Bettinelli and dealt initially with machining processes of mechanical precision and it then specialized in the following twenty years in the fields of special assembling machines and cam units for the transformation of the movement. At the moment the company has four different brands and as many lines of products, that is: CB Automazione, which designs and develops lines of special machines for assembling and controlling, especially for the pharma-cosmetics field; CDS Cam Driving System, which deals with the design and construction of cam systems for actuators of complex movements - rotating, linear, oscillating and cyclical ones; CB Packaging, which designs and develops semi-automatic, automatic machines and special units for the packaging of disposable health products (sanitary napkins, diapers, wet towels etc.) in envelops of different kinds of plastic foils; HCS, the last division to be created, which is dedicated to the developments of hardware and software products for the machines, i.e. Plc, cards for the acquisition of data and so on. Bettinelli started with 30 employees and has nowadays 170 workers, including the ones working at the American and German branches of CDS and can count on a widespread network of agents. The total turn-over is of ca. 16 million € with more than 50% of the production exported abroad and especially in the European and USA markets of reference.

"Thanks to the installed air cleaners, – ends Chiozzi – the machining processes and the development of our solutions, not only at CDS but also at all the other divisions, are carried out in the total respect of the environment- a result that has had positive consequences along the whole working chain. The removal at the source of all the pollutants is the result of a close cooperation that has been developing over the years with AR Filtrazioni – an important partnership which we have to thank for the achievement of a clean and healthy working environment. At the moment we have about thirty units to which we should add the global service of control and maintenance. Not least, the correct and equally effective maintenance interventions enable us to maintain high the efficiency of the systems in use and also to have a remarkable energy saving."

When the qualified technicians of AR Filtrazioni execute the maintenance of the air cleaners, they do not only carry out the control, but they also keep a record of the replaced filters, working cycles etc. A complete codified management of the combination air cleaner/machine tool, registered and certified in case of possible future inspections, which enables the optimization of the performances and cost-control, basically in real-time.