

# Much more than a simple air filter

Medicina, 30 kilometres east of Bologna, in northern Italy: this is where the heart of the air filter manufacturer BMC beats. Propelled by an uncompromising passion, Italians have taken over racing and now steer the aftermarket. A visit to the factory shows us how things happen differently here.

“We’ve got racing in our blood. It’s always been a part of our heritage”. BMC founder Mr Gaetano Bergami, leaves no doubt as to the origins of his company. With an all-consuming passion, he pushes himself and his collaborators to the max. “If need be, we work all around the clock until we achieve perfection. You can’t postpone racing”. He adds, proudly, “We’ve never lost a single client in all these years”. Success speaks for itself: BMC plays a part in virtually every motor racing championship. Whether it’s Formula 1, DTM, GT300 or Le Mans, BMC air filters guarantee the air flow required by exceptionally high-performance engines

everywhere. The most recent success was last year’s victory with VW at the World Rally Championship. “We’re no longer just designing filters, but complete air intake systems, and for the aftermarket, too, since 1999”, explains the manager. The jurist was bitten by the motor racing bug very early on in life. In 1973, at the age of 22, he established the “Bergami Motor Competition”, BMC in short. Up until the ‘80s, BMC manufactured tyres for motorcycling, especially for endurance races. The firm also made its name as a distributor and struck up its first

contact with Formula 1 through Cosworth. The turning point happened in the summer of 1995, by entirely unrelated means. “Ferrari called us up for information on air filters. Back then we were in touch with companies that would have been able to manufacture something like that,” recalls Bergami. But the US partner which BMC had counted on refused the offer. In a short amount of time, Bergami got Ferrari to send designs and specifications and fabricated the requested air filter itself. “In the space of two weeks we produced a prototype and sent it to

Ferrari. After the initial successful tests, we found out that we’d made a part for Formula 1...” Although the Ferrari V12 engine with BMC air filter was used in just one race, in the final race of the season in Adelaide in 1995, it marked the start of a new era for Ferrari and BMC. Up until then, there was not a single team in the premier-class of motor racing that used air filters. That changed drastically from 1996; this development gave BMC what could be described as a monopoly. With the exception of Renault, all Formula 1 teams and engine manufacturers now rely on BMC.

## A matter of trust

The company was extremely bold in its bid to make it into the world of German racing car builders. BMC knocked on the doors of Audi, BMW and Porsche for years.



1. Raw materials for manufacturing the filter: four layers of cotton, epoxy resin and a metal mesh 2. Air filters come in a great many forms 3. BMC has been a leader in motor racing for years 4. Audi has been counting on BMC air filters at Le Mans since 1999 5. Engineer Maurizio Zanusso and his colleagues are forever designing new filters 6. The manager demonstrates the advantages of a CRF airbox for Audi R8 für den Audi R8



But to no avail. However, in December 1999, two days before Christmas, the phone rang in Medicina. It was BMW. "It was ten o'clock in the morning. They wanted a sample of a filter." Bergami asked them to send the design by fax. "But it was only in 2-D and we couldn't manufacture anything with that." BMC had a 3-D design prepared internally at once and send it back to BMW at three in the afternoon. "They replied that it was too late, that they'd given the job to someone else and that they were about to close for the Christmas holidays..." What could be done? Should they give up? Never! Bergami did not give it a second thought; he had a filter built at his own expense during the holidays and arranged for its urgent shipment to Munich. When the BMW engineers returned to the office after the Christmas holidays, they were astonished and from then on they have relied on BMC. Immediately after, it was time for Audi and Porsche, too. "Our German clients really like us now, because we are highly accurate in our work, something that Italian companies weren't capable of in the past..." smiles the businessman. Such a radical concept of work can only work if it is shared by all collaborators, too. Those wanting to work

**BMC prepares between 1000 and 4000 different filters every day. Almost every single work step is performed manually, including in the manufacturing of aftermarket air filters**



1. Even the filter material is cut by hand
2. Michelina Destasio is responsible for fine tuning the frame
3. Carbon production also involves the use of complex components
4. What cannot be produced as a component is glued together
5. Before curing in the autoclave, the carbon components are completely deprived of air
6. Air filter quality control using microscopes: error allowance kept to a minimum





1. Well-devised patents accelerate air flow 2. Holding the sceptre: "patron" Mr Gaetano Bergami  
3. The "Oval Trumpet Airbox" (OTA) is the top product of the BMC range. It supplies pressurized air to the engine

with BMC must be passionate about their work. Gaetano Bergami knows each of his 70 employees in person. There has to be the right amount of chemistry. "In the '90s I could count my collaborators on the fingers of one hand", observes the patron, looking back. "But more recently, on entry into the aftermarket sector, we've grown really quickly." To secure a successful future for the company, BMC engineers never stop

into studying the composition of oil for filters, new materials and filter structures and airbox systems to optimise air flow. There are clearly defined assumptions: utmost protection with utmost air penetration and using efficiency to the max, even in extreme conditions.

### Moving onto new dimensions with carbon

All products in Medicina are still manufactured as they were yesteryear, with skilled manual work. The figures – for the aftersales market, too – are astonishing: BMC produces between 1000 and 4000 filters a day – different models at the same time. On average, approximately 20 specimens of each filter type

are produced a month. Furthermore, in 2009 BMC introduced a new cornerstone with carbon production. BMC Composite, the affiliate competent for this, is facing BMC, on the other side of the street and produces highly complex carbon fibre components for the aeronautical, military and motor industry. It all began with an order sent by the helicopter builder Eurocopter in 2004. It was another four and a half years before BMC became a certified manufacturer. "The aerospace sector is another world," explains Mr Bergami. "Everything has to be certified with utmost accuracy. For this reason, the most difficult aspect of the Eurocopter order wasn't manufacturing the components, but the certification process."

### Unlimited growth

Commitment in the aerospace world has produced considerable synergic effects. This is another reason why Gaetano Bergami is constantly seeking new fields of

There are approximately 20,000 products in the warehouse at any one time. They are shipped direct to our dealers, which are scattered over 60 countries worldwide.





The BMC autoclave is operating pretty much around the clock and what is more, it works at 140° Celsius at 6 bar air pressure. All the data is saved on a USB stick at the end of the day.

activity. "This opens eyes and widens horizons". Bergami clarifies that growth at all costs will never take place in BMC.

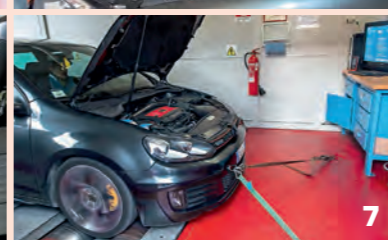
The company does not intend to be a slave to industry. "That would ruin our philosophy. Excessive growth isn't a good thing. We're currently planning a new building which, however, will be the last." However, no one needs fear for the future at BMC. The order registers are full and the production capacity for the years to come has already been allocated. "Business is flourishing. We're very happy with our clients," smiles the manager. And who are we to say he's wrong: it is already seven o'clock in the evening, but the lights are still on in the opposite carbon production department...

**Text:** Patrick Zwerger  
**Photos:** Markus Leser



Italians now offer replacement filters for almost all motor vehicle models

## Dyno-Test: airbox CRF



1. Testing a standard air filter 2. The original on the left; on the right, the airbox replacement filter 3. Assembling the CRF box is simple; a handy, short manual is available if necessary 4. BMC engineer Marco Forni performs installation 5. Expected assembly time is about 30 minutes 6. This is what the CRF box assembled on the Golf 6 GTI 7. looks like. Test, the second one! 8. Marco Forni inspects the result: "The torque is decisive!"



**How much more power does a carbon airbox effectively produce? We want to know more!**

The main task of an air filter is to protect the engine from unwanted particles in the air taken in. A second basic factor is the air flow. More air means more effective combustion and therefore better engine performance. The art consists in harmonising these two seemingly contradictory factors in as perfect way as possible.

### Faster assembly, greater air flow

This is precisely what BMC guarantees with its CRF airbox. CRF stands for "Carbon Racing Filter"; it therefore follows that the whole airbox is made of carbon, which is light, stable and also has extreme heat conductivity. In this way, the cold air flowing from outside is protected by the high temperature of the engine compartment. The cornerstone of the CRF box is a purposefully soaked cotton filter and an epoxy resin-coated aluminium mesh. Assembly is performed by replacing the original airbox and can be completed in just 30 minutes even by the most inexperienced operators, thanks to a short, handy manual. In a trial performed on our 2-litre Golf 6 GTI equipped with CRF644-S1, optimised air flow and improved filter performance with greater air flow guarantee an effective power increase of 7 HP. The Dyno diagram demonstrates, above all, (see below) torque which is visibly higher in all output intervals. "You can really feel the power this way," says BMC engineer Marco Forni with a satisfied smile.

And what does TÜV have to say? We do not as yet have any assessments for the CRF644-S1 (suitable for VAG vehicles with 1.8- and 2-litre TSI engines). "However, we are planning to have one built shortly." These are the words of Stephan Knoke, BMC Germany distribution supervisor. To date, assembly must be registered as a single test. Only like this is it certified in accordance with the German highway code. The CRF644-S1 costs 785.40 euros.

