

MAHLE n e w s

A F T E R M A R K E T

MAGAZINE FOR TRADE, WORKSHOP, AND ENGINE REPAIR

www.mahle-aftermarket.com

Mobility, growth, and health are key topics for the future. Repair shops and trade are facing major challenges in their bid to successfully address global trends on the one hand and technological change on the other—more expertise, service, and health protection are necessary in order to attract and retain customers and comply with requirements and laws. Be it our new ArcticPRO A/C service units, the innovative CareMetix® cabin filter, or electric motors, our

contributions, products, and services are versatile. That is why we are improving existing technologies, maintaining values, and continually offering innovative service solutions—with the aim of building a successful and worthwhile future for all. For our repair shop and trade partners, this means more dialogue, more information, more service and support—because we have the solutions you need. This issue of MAHLE Aftermarket news will bring you up to date.

2016

Good CLIMATE HAS MANY FACETS.

EVERYONE IS TALKING ABOUT IT, BUT WE ARE TAKING CARE OF THE DETAILS—WITH OUR WORLD-FIRST CABIN FILTER CareMetix®, NEW A/C SERVICE UNITS WITH E³ TECHNOLOGY, AND OUR SOLUTIONS FOR INDIVIDUAL E-MOBILITY.

details on pages 3, 4, 5, and 7

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BEHR®

CLEVITE®

KNECHT
FILTER®

MAHLE
ORIGINAL

Dear readers,

Olaf Henning,
Managing Director of
MAHLE Aftermarket GmbH
and member of the MAHLE
Management Committee.



latest technical information, tips and tutorials, motorsports news, blogs, and much more on the subject of mobility.

We are giving the growth market of filtration new momentum with our revolutionary cabin filter—you can read more about our world-first **CareMetix®**, with its five-layer technology that eliminates unpleasant odours, on page 4.

Our new ACX models from the ArcticPRO product line enable repair shops to carry out A/C services in an efficient, economical, and ecological way. Find out what the four innovative models with E³ technology for entry-level and professional use have to offer on page 5. And our commitment to the modern classic and vintage car sector shows that we are not disregarding the past as we look to the future—you can read the interesting details on page 8. One question that remains particularly intriguing is: which drive technology is already fit for the future? You can find our responses to the global megatrend of urbanisation and its consequences for individual mobility on page 3.

“ MAHLE AFTERMARKET IS MADE UP OF PEOPLE WHO HELP YOU DO YOUR JOB EVEN BETTER. ”

At MAHLE Aftermarket, we bring all of these innovations (and much more) to life for you—each and every day. And, from 13 to 17 September 2016, you can also meet us in person on location at Automechanika in Frankfurt/Main in Hall 3, Stands A11 and A20 as usual, and now for the very first time in Hall 9, Stand A69, where we will be presenting our MAHLE Service Solutions range.

We attach great importance to being directly connected and look forward to the personal dialogue with you. This will undoubtedly provide decisive ideas to one or the other topic. On behalf of all employees of MAHLE Aftermarket, I warmly invite you both to read the latest issue of **MAHLE Aftermarket news** and to engage in dialogue with us at Automechanika.

The future remains exciting.

Sincerely

Olaf Henning

The tasks assigned to vehicle repair shops are changing rapidly—in conjunction with the almost revolutionary changes taking place in the automotive industry. The main focus is on increasing electrification and alternative drive technologies: hybrid and electric drives, battery technology, and alternative fuels. In the short to medium term, this requires the repair shop to systematically expand its skills, provide ongoing employee training, and also invest in a new generation of diagnostic and maintenance devices. But above all, the repair shop needs a reliable partner by its side as it heads into the future of automotive maintenance and repair.

MAHLE Aftermarket has been a driving force for many years. The people behind MAHLE Aftermarket GmbH are helping their repair shop and trading partners become better and better—all over the world. Alongside our traditional distribution channels, we have now added more—as of summer 2016, for example, a convenient e-shop exclusively for our wholesale partners to complement the established TecAlliance industry solutions such as TecDoc, TecCom, and TecRMI. We are thus able to supply the entire trade chain even more rapidly with MAHLE Original parts and information. In September 2016, we are launching our “MPULSE” online platform for trade, repair shops, and car enthusiasts—with the



POWERED BY YOUR NEEDS

E-MOBILITY.

WE ARE *shaping* E-MOBILITY.



Growing global urbanisation demands innovative solutions for an optimised vehicle mix. MAHLE is driving the trend towards increasingly efficient electrification in many sectors—for instance, with the development and production of environmentally friendly electric motors for scooters in the 50 to 125 cc power class.

Jonathan Dörflinger,
Business Development and
Product Management in
MAHLE's Mechatronics division

“Urbanisation is a global megatrend. It is therefore only a matter of time before demand for electric scooters and similar vehicles rises considerably.” (Jonathan Dörflinger, Business Development and Product Management in MAHLE's Mechatronics division)

While electrically powered scooters have long been part of the street scene in Asia, the majority of these vehicles are technically immature and barely stand a chance in the demanding European market. “Consumers expect high-quality vehicles that are in no way inferior to the competition and their combustion engines,” says Thomas Grübel from the Munich-based scooter manufacturer GOVECS. He goes on to explain why his company uses motors from MAHLE: “The maintenance-free unit is extremely reliable and fits our premium philosophy perfectly.” However, the price, charging times, and range of the batteries must be improved if they are to be used outside of city traffic. Iztok Spacapan, Head of Development at MAHLE Letrika, maps the route towards the future: “The current 3.3 and 6 kW models are now to be superseded by motors with 10 to 14 kW.” An intermediate step, he emphasises—because the engineers at Letrika are already developing the following generation, with 20 to 25 kW.



Whispers from the shadows: electric scooters with MAHLE powertrain technology.



Compact and practical: in the Renault Twizy, a 13 kW asynchronous electric motor from MAHLE guarantees urban mobility.



A good NOSE



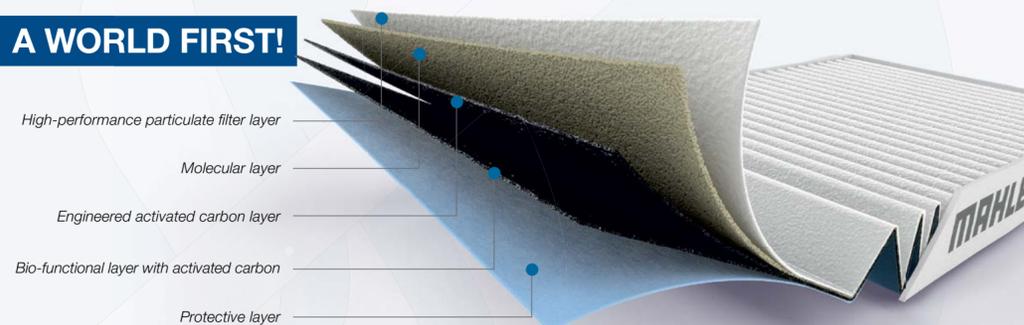
Steffen Dassler, Head of Product Management Filtration, Engine Peripherals and Mechatronics.

Steffen Dassler is a passionate motorist. During the many cross-country trips he has to undertake on a professional and personal basis, the only thing that really bothers him are the penetrating, pungent odours he inevitably encounters when he drives near freshly fertilised fields, large construction sites, or water treatment plants, as well as in tunnels and traffic jams. As a filtration expert, he knows that all of the filters currently available on the market are powerless against these complex odours. But he can't shake the idea: what if it were possible to combine all of the currently known characteristics of the MAHLE and Knecht cabin filters—such as protection against pollen, soot, fine particulates, bacteria, and mould—with an effective odour blocker? This idea also fascinates the development team for cabin filters at MAHLE, triggering a search for state-of-the-art materials and processing technologies. After a development period of 15 months in the laboratory followed by tests in a specially constructed demonstration vehicle: it works! The added ammonia-sulphur mixture remains reliably below the odour detection threshold. Pre-series filters tailored to various vehicles are now produced—the field trial begins. The reports are positive: passengers can now enjoy wonderfully neutral air while driving—and no longer notice smells from water treatment plants and manured fields. The filter experts are elated. And they named the new filter **CareMetix®**. You can experience it for the first time at Automechanika in Frankfurt—Hall 9 at Stands A11 and A20.

- Protection against odours before they develop
- Protection against pollen
- Protection against soot and fine particulates
- Protection against mould
- Protection against bacteria

FIVE LAYERS PROVIDE FIVEFOLD PROTECTION: CareMetix® WITH S5 BROADBAND TECHNOLOGY

A WORLD FIRST!



CareMetix®. THE NEW MAHLE PREMIUM CABIN FILTER: BENEFITING TRADE AND REPAIR SHOPS

- **Premium segment with an attractive trade margin**
With CareMetix®, you're expanding your premium range upwards—and benefiting from above-average margins!
- **Assembly support**
Efficient repair shop processes thanks to installation aids and web tutorials
- **In-depth sales support**
Eye-catching decor, in-depth information, and attractive packaging



Innovation in A/C SERVICE

The new ArcticPRO product line enables repair shops to carry out their A/C services in an efficient, economical, and ecological way. All four innovative models are designed for the refrigerants R134a / R1234yf and use in passenger cars, trucks, hybrid vehicles, and agricultural and construction machinery.

A/C SERVICE WITH E³ TECHNOLOGY

Optimised processes thanks to E³ technology

With the patented **E³ fill** process, the air conditioning system can be filled independently of vehicle and ambient temperature, minimising waiting times.

With the **E³ pump**, the internal cleansing process for the vacuum pump, oil change intervals are extended by up to 1,000 operating hours—a tenfold increase—making the annual oil change a thing of the past.

E³ connect fully recovers the refrigerant from hoses and service fittings—thereby protecting the environment and reducing costs.



Entry-level to professional use: ACX 120 (R134a) / ACX 220 (R1234yf)

- Alphanumeric keypad
- E³ technology
- USB interface for software updates, operational and refrigerant reports, and the remote diagnosis function
- Individually extendable vehicle database
- Optional vehicle database for reading off service data
- Optional printer for customer reports



For air conditioning professionals: ACX 150 (R134a) / ACX 250 (R1234yf)

- Standard colour touchscreen with intuitive interface
- E³ technology
- Powerful 170 L/min vacuum pump guarantees optimal performance in all areas
- Includes vehicle database and printer
- Integrated performance test function for a complete air conditioning check in just ten minutes. The results can be displayed visually and given to customers.

All four ArcticPRO models are equipped with a remote diagnosis function. By means of an online connection to the service centre, components can be controlled, malfunctions diagnosed, and updates implemented—at any time and from any location.

E³ technology from MAHLE = ecological x economical x efficient

ARTICPRO ACX 1299—NATIONWIDE COVERAGE FOR KIA MOTORS AMERICA

MAHLE has equipped more than 750 Kia dealers in the USA with ACX 1299 A/C service units since March 2016. The model is designed for R1234yf and features an integrated TechPRO diagnostic tool, for which MAHLE received the Best Use of Technology award (MACS 2016). This means that the Kia repair shops in the USA have a uniform, online A/C diagnostic system for vehicle identification, diagnostics, warranty processing, maintenance, and optimal customer support.



We ELECTRIFY ANYWHERE AND EVERYWHERE.



THE MECHATRONICS RANGE FROM MAHLE LETRIKA HAS BEEN FULLY INTEGRATED SINCE 2016. WE ARE THEREFORE ABLE TO OFFER THE GLOBAL AFTERMARKET A BROAD SPECTRUM OF PRODUCTS RELATING TO STARTER MOTORS, ALTERNATORS, AND ELECTRIC DRIVES THAT ARE COMPETENT, INNOVATIVE, AND SAFE.



New packaging layout, alternator, AAK type

With the MAHLE Original brand, we are supporting the progressive electrification of vehicles and units with the aim of reducing consumption and emissions, improving comfort, and optimising services.

Worldwide, we currently offer 687 starter motors, 701 alternators, and 412 electric drive motors—including a spare part range with more than 4,800 parts. Our engineers at MAHLE Letrika expand the range as needed—15 new starter motors and 15 new alternators are ready for delivery, and another 29 starter motors and 31 alternators are in development. Following the integration of MAHLE Letrika, it was necessary to adapt the packaging and sales identifiers—some of the older boxes are still in circulation. You can recognise all of the new products by their new packaging layout—equipped with the tamper-proof VeoMark security label.



Welcome event at MAHLE Letrika in Šempeter pri Gorici, Slovenia

SYSTEMS, SUPPORT, SERVICE

Our experts analyse demand and future applications together with our customers. We will retain this strategy in 2017, and are continuously expanding our range: more support, more spare parts, optimised repair kits, assembly and repair instructions, and electrical connection diagrams.

B2B—AT LIGHTNING SPEED

Prices, availability, orders—the new e-shop from MAHLE Aftermarket gives wholesalers access to all of our mechatronics products at the click of a mouse. The e-shop is already online in Germany, Belgium, Spain, Great Britain, and Ireland—other countries will follow. “The new e-shop supports our sales strategy for the wholesale market by providing additional services that will make our cooperation easier and more efficient.” (Olaf Henning, Member of the Management Committee and Managing Director of MAHLE Aftermarket GmbH)
eshop.mahle-aftermarket.com
ecommerce@de.mahle.com

AFTERMARKET

Air conditioning compressors redefined

—THE 2017 AIR CONDITIONING OFFENSIVE

FOLLOWING THE ACQUISITION OF THE THERMAL MANAGEMENT OPERATING LINE OF DELPHI AUTOMOTIVE PLC IN 2015, MAHLE IS FURTHER EXPANDING ITS LEADING POSITION AS AN ORIGINAL EQUIPMENT MANUFACTURER IN THE FIELD OF THERMAL MANAGEMENT.



The MAHLE Aftermarket Managing Director Olaf Henning at the IAA 2015 discussing the mini compressor.

With the MAHLE Group's newly integrated air conditioning compressor product group, we are enhancing our technological expertise and now have a complete portfolio covering all aspects of the cooling and air conditioning circuit.

AIR CONDITIONING COMPRESSOR—THE CORE COMPONENT

Air conditioning compressors are the core element of vehicle air conditioning. Usually driven by the vehicle engine via a V-belt, they compress the gaseous refrigerant and forward it to the condenser, where the compressed gas loses pressure and cools down. If the air conditioning circuit is not properly maintained, penetrating moisture or a lack of oil will damage the bearings of the air conditioning compressor. This not only causes disturbing noises, but also reduces the cooling capacity, even causing the HVAC system to break down completely, which means the air conditioning compressor must be replaced.

MAHLE AIR CONDITIONING COMPRESSORS ON THE OPEN MARKET

To ensure the global aftermarket can also benefit from our newly acquired technological expertise, air conditioning compressors will be sold by MAHLE Aftermarket in future.

We will establish the MAHLE air conditioning compressors in the market together with our strong partners in independent trade and thus provide the parts dealerships and repair shops with the most efficient access to MAHLE's original equipment competence.

MAHLE Aftermarket will be offering air conditioning compressors as of 2017, and will gradually expand its product range in line with market requirements.



Mini air conditioning compressor (CVC)

AIR CONDITIONING COMPRESSORS AND A/C SERVICE UNITS FROM A SINGLE SOURCE

Alongside appropriate products, MAHLE Aftermarket also offers the necessary repair shop equipment. Our ArcticPRO A/C service unit line is suitable for both entry-level and professional use and is designed for the refrigerants R134a and R1234yf. Thanks to E³ technology, repair shops are able to carry out A/C services in an ecological, economical, and efficient way. Find out more about A/C service units from MAHLE on page 5.

Preserving automotive monuments:
THE CLASSIC LINE IS GROWING

MODERN CLASSIC, NEOCLASSIC, AND VINTAGE CARS IN PARTICULAR ARE THE MOST VALUABLE MONUMENTS FROM AUTOMOTIVE HISTORY. MAHLE KEEPS THEM RUNNING—ON THE BASIS OF THEIR ORIGINAL DESIGN DRAWINGS AND INVARIABLY IN ORIGINAL EQUIPMENT QUALITY.



The chances are that no one would be satisfied with a “three-quarter” vintage car. The owners of historic cars place great value on ensuring that the vehicles are as authentic as possible—including the interior. The engine in particular must be equipped as it was for its first registration, or at least come from the series.

WEAR IS INEVITABLE

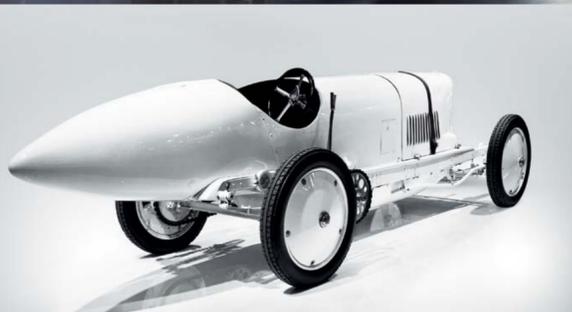
Even with devoted care and maintenance, these cultural assets on wheels are “mortal” in spite of their amazing condition—engine parts wear out. This is all well and good if original equipment spare parts are available.

PRESERVING CULTURAL HERITAGE

MAHLE is the “monument preservation society” for the engines of historic automobiles. The engine parts range, which was further expanded in 2016, is highly diversified. The Classic Line, for example, offers die-cast and forged pistons, piston rings, and cylinders for vehicles that have shaped the development of the automobile: from the Porsche 917 and the Mercedes-Benz 190 SL through to the Jaguar E-Type.

BASED ON ORIGINAL DRAWINGS

The MAHLE Classic Line only includes components that have been manufactured according to the original design documents. Many of the parts were developed and series-produced as early as the 1950s for original equipment purposes—together with renowned automobile manufacturers. For this line, MAHLE goes right back to those design drawings.



Benz race car Blitzen Benz 1911, cast pistons, 4 cylinders, 21.5 litres.



RetroClassicsCultur Award

On 18 June, MAHLE received the RetroClassicsCultur Award for “Special contribution to the preservation of the historical automotive cultural heritage”. This was a strong incentive for MAHLE to expand the Classic Line range and enhance their services for modern classic, neoclassic, and vintage car enthusiasts.

LIVING LEGEND



BORN INTO THE MAHLE FAMILY IN 1933, EBERHARD MAHLE IS ONE OF THE MOST RENOWNED AND SUCCESSFUL RACING DRIVERS OF HIS GENERATION. HE CELEBRATED HIS GREATEST SUCCESSES BETWEEN 1954 AND 1968 WHEN HE PARTICIPATED IN NATIONAL AND INTERNATIONAL RACES, MOUNTAIN RACES, AND RALLIES, AND SAT BEHIND THE WHEEL OF ALL KINDS OF RACE CARS MADE BY ABARTH, MERCEDES, PORSCHE, VOLVO, AND OTHER MANUFACTURERS. DURING HIS ACTIVE RACING CAREER HE PARTICIPATED IN 210 RACES AND ACHIEVED 150 CLASS AND OVERALL VICTORIES.



Niko Johannidis, Eberhard Mahle, and Olaf Henning (f.l.t.r.) at the RetroClassicsCultur award ceremony.



MAHLE Aftermarket news: Mr Mahle, when did you catch the motor-sports bug?

Eberhard Mahle: My father was an engineer and was responsible for the technology at MAHLE. When I was 15 or 16 years old, he let me accompany him to races. I then took part in a race for the first time in 1954—at the Rallye Solitude. I had DEM 3,000 and invested DEM 2,500 in a used DKW touring car. The result of my first race: first place in my category (displacement of up to 1,000 cc) and fourth in the overall classification.

MAHLE Aftermarket news: What was the highlight of your motorsports career?

Eberhard Mahle: The very first European Hill Climb Championship category for Gran Turismo vehicles was introduced in 1966—without a displacement limit. That was the perfect competition for me—in a Porsche 911. Out of seven races, I only lost the first one against a Ford and a Ferrari with twice as much horsepower, but won all of the rest—and, in doing so, the European Championship. All the experts thought it was impossible to win with only 130 HP. But I tried... and succeeded.

MAHLE Aftermarket news: There is one race that you remember particularly well...

Eberhard Mahle: The first Balkan Rally in Yugoslavia. There weren't any asphalt roads so we constantly had to patch tyres—nails from the horse-drawn carts were lying everywhere. No petrol stations! The petrol was delivered right to the track in barrels. In the end, we won—a nice sum in dinars. Only we couldn't change it into German marks. So we had to make do once again and bought hundreds of bottles of slivovitz fruit brandy. We then sold these in Austria and changed the schillings into marks.

MAHLE Aftermarket news: And your passion for motorsports lives on?

Eberhard Mahle: I still follow Formula 1 and the German Touring Masters (DTM). And I still drive historical vehicles on a regular basis. The Porsche Museum lends me a vintage car now and again and invites me to events—which is really great fun.

BMW Motorsport
Official Partner



NUREMBERG AT 250 KM/H

THIS YEAR'S LEGENDARY DTM RACE WEEKEND AT THE NORISRING ONCE AGAIN THRILLED PARTICIPANTS AND FANS ALIKE. ONE DRIVER IN PARTICULAR HAS SOME GREAT MEMORIES OF THE ONLY CITY CIRCUIT IN GERMANY: MARCO WITTMANN IN HIS BMW M4 DTM.



Marco Wittmann is part of the BMW DTM squad of drivers.

A track length of 2,300 m, 83 laps, 2 days of racing—the DTM weekend was held at Nuremberg's Zeppelinfeld. This track is unique in Germany, because parts of it are used by normal road traffic during the week. On the long start-finish straight in front of the grandstand, the speedometer hits 250 km/h, guaranteeing spectacular braking and overtaking manoeuvres at the following Grundig hairpin with its 180-degree curve. The shortest track in the DTM calendar is recreated each year—numerous helpers erect stands, paddocks, and the infrastructure, practically turning motorsports in "Franconian Monaco" into a family reunion. For Marco Wittmann, who belongs to the squad of BMW DTM drivers, like Bruno Spengler (see interview in **MAHLE Aftermarket News** 3/2015), it is almost a home game—he was born in Fürth, near Nuremberg. With a cool head, the first race sees him advance from 13th grid position to 4th place, thus securing important championship points.

"In conclusion, that was pretty huge," said Wittmann after Saturday's race. "Position 13 gave me a good start. Then it always gets very tight at the first

curve. I chose the inside line, which I believe was the right move. It enabled me to make up positions and then benefit from the hotheads in front of me. When you're up at the front, you need to keep a cool head. In terms of pace, we were incredibly fast. From 13th to 4th place—that doesn't happen every day."

The following Sunday, Wittmann was able to take his performance on the racetrack one step further in the hot summer temperatures. He calculated the risk, left the dangerous attacks to others, and came in sixth—which meant he successfully regained the lead in the DTM.

"On a city circuit like the Norisring, extreme demands are placed not only on the driver but on the vehicle too," said Wittmann. "Tough acceleration manoeuvres out of the hairpin bends require sizeable engine output and good traction. The harsh decelerations before the hairpin bends only work perfectly with very good brakes. What's more, the bumps on a street circuit push the chassis to its limits. The combination of driver and vehicle has to be just right in order to succeed on tracks like this. The fact that I'm now leading in the driver standings is something we really didn't expect before this weekend."

Fans at the Norisring get first-hand experience of what happens on the track. However, only very few are aware of just how much MAHLE technology is involved in BMW's success on the racetrack: forged pistons, pins, rings, circlips, crankshaft bearing bushings, and the water pump come from MAHLE—ensuring good performance and driving pleasure, particularly in first-class motorsports.



AUTOMATICALLY *in good* HANDS

WHEN SERVICING AUTOMATIC TRANSMISSIONS, LUBRICANT SPECIALIST LIQUI MOLY RELIES ON B2B SOLUTIONS FROM MAHLE. FOR GOOD REASON.

One in two passenger cars worldwide has an automatic transmission, and one in four in Germany. This is a growing market for independent repair shops. The share of automatic transmissions is increasing annually by 5% to 10% and transmission oil does not last forever, as Markus Scherl, Application Engineer at Liqui Moly, knows very well: "The lubricant needs to be changed after 80,000 to 120,000 km, or every four to eight years." Abrasion, high thermal load, penetrating water, and glycol reduce the efficiency of the oil. This results in switching delays, noise, and—in the long term—engine failure. Up until a few years ago, a complete transmission oil change was difficult, if not impossible. "30% to 50% of the filling quantity could be discharged via the oil sump and the same amount refilled, but that was it," explains Scherl. A complete change of lubricant is now possible thanks to transmission oil service units. Gear Tronic from Liqui Moly cleans the transmission and completely replaces the oil. Additives can improve the running smoothness and minimise wear if necessary—and all of this is fully automated. The technology comes from MAHLE.

GEAR TRONIC IN DETAIL

- Automated flushing
- Large control panel
- Versatile use thanks to the comprehensive adapter set
- Two separate digital scales for old and fresh oil
- Sight glasses to control the fluid replacement

With Gear Tronic, intensive training courses, oil change products, and a great deal of knowledge about lubricants, Liqui Moly is successfully promoting the service profile of independent repair shops, and is applying the hardware expertise of MAHLE Service Solutions to the B2B sector.



Gear Tronic
Liqui Moly

ATX3
powered by MAHLE

MAHLE Service Solutions also offers professional solutions for other applications in the repair shop. We will be presenting the new generations of service units in detail at Automechanika in Hall 9, Stand A69.



TURBOCHARGER

For passenger cars Audi A3 III 1.2 TFSI; Seat Leon 1.2 TSI; Skoda Octavia 1.2 TSI; VW Golf Sportsvan 1.2 TSI; Golf 7 VII TSI; 1.20 L, 4 cylinders (engines: CJZA, CJZB, CYVB)
Characteristic features BMTS turbocharger
Part no. 030 TC 11001 000 (MAHLE Original)



MAP-CONTROLLED THERMOSTAT

For passenger cars Chevrolet Aveo, Cruze, Orlando, Trax; Opel Astra, Insignia, Meriva, Mokka, Signum, Vectra, Zafira; 1.40–1.80 L, 4 cylinders, 76–132 kW, 103–180 HP
Part no. TM 41 105 (both MAHLE Original and Behr)



CYLINDER LINER

For commercial vehicles Scania series P, G, R, T; 5/6 cylinders, 169–353 kW, 230–480 HP (engines: Scania DC 9.16–9.18, DC 12.10, DC 12.13, DT 12.03, DT 12.11–12.12, DT 12.17)
Part no. 061 WN 27 01 51 (MAHLE Original)



FUEL FILTERS

For trucks Isuzu N series; 3.0 L, 61–110 kW, (engines: 4JJ1-TC, 4JJ1-X) KX 445D (both MAHLE Original and Knecht)



THERMOSTAT INSERT

For commercial vehicles MAN NG, NL, SL, SÜ, TGA, TGS, TGX; Neoplan Cityliner, Tourliner; 10.52–12.4 L, 6 cylinders, 198–324 kW, 270–441 HP (engines: D2066 LF/LOH/LUH)
Part no. TX 158 83 (both MAHLE Original and Behr)



CONROD BEARING PAIR

For commercial vehicles Deutz Agrofarm, Agrotron; 3.80–6.10 L, 4/6 cylinders, 52–190 kW, 71–258 HP (engines: BF4M 2012/2013, BF6M 2012/2013)
Part no. 099 PL 21067 000, 099 PL 21067 025, 099 PL 21067 050 (MAHLE Original)



RING SET

For commercial vehicles Mercedes-Benz Actros, Antos; 10.68 L, 6 cylinders, 240–315 kW (engines: OM 470.903/904/906/907/908)
Part no. 001 RS 111150 NO (MAHLE Original)



YOU CAN FIND DETAILED INFORMATION ABOUT THE NEW PRODUCTS IN THE REGULARLY UPDATED ONLINE CATALOGUES AT WWW.MAHLE-AFTERMARKET.COM

OIL FILTER INSERT

For passenger cars Mercedes-Benz E-Class; 2.0–3.0 L, 4/6 cylinders, 120–190 kW (engines: OM 654, 656)
Characteristic features PIN patent
Part no. OX 823/6D eco (both MAHLE Original and Knecht)



PISTONS

For passenger cars BMW 325d, 330d Gran Turismo, 430d xDrive, 530d Touring; 2.99 L, 6 cylinders, 150–280 kW, 204–381 HP (engines: BMW N57D30 A/B/C/D)
Characteristic features With cooled ring carrier and graphite coating
Part no. 081 PI 00105 000 05 (MAHLE Original)



TURBOCHARGER

For passenger cars VW Beetle 2.0 TDI, Golf VII 2.0 TDI, Jetta IV 2.0 TDI, Scirocco 2.0 TDI; 2.0 L, 4 cylinders, 74 kW (engines: CUUA, CVCA, CUUB)
Characteristic features BMTS turbocharger
Part no. 030 TC 11004 000 (MAHLE Original)



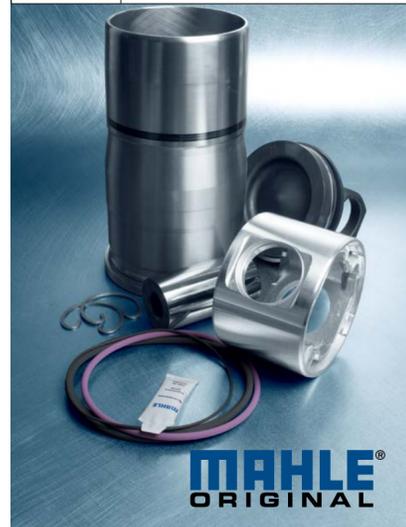
HORSESHOE AIR FILTER

For passenger cars Audi Q7; 3.0 L, 6 cylinders, 183–245 kW, 248–333 HP (engines: CRTC, CVMD, CZZA, CUEA, CVZA, CREC)
Characteristic features Horseshoe-shaped
Part no. LX 3233/6 (both MAHLE Original and Knecht)



ASSEMBLY

For commercial vehicles Volvo 8000, 9000, B12 series; 6 cylinders, 250–280 kW, 340–380 HP (engines: Volvo D 12 E 340/380)
Characteristic features Ferrotherm piston with pin bore, phosphate-treated. Cylinder liner with roller-burnished flange area and black marks
Part no. 037 AY 00116 092 RK (MAHLE Original)



CABIN FILTER

For passenger cars Opel Astra K, Meriva B; 1.0–2.0 L, 4 cylinders, 55–147 kW (engines: B10XFL, B14XFL, B16DTE, B16DTU, B16DTH, B16DTR, B16SHT)
Characteristic features From chassis no. D4000001
Part no. LAK 1123 (both MAHLE Original and Knecht)



Picture credits: see imprint



In the spotlight: the Maserati Levante.

POWER EX WORKS

MASERATI LEVANTE: THE SPORTS CAR OF SUVs

The Italian legend is aiming to get into the fast lane again with the Levante: the first cross-country vehicle from Maserati is expected to become the brand's best-selling model. In the spring of 2016, CEO Harald Wester already received four-figure "blind" orders. Dealerships and test drivers are raving about it: the Levante drives like a sports car on stilts—and its price lies in the Cayenne range.

SILK IN SERIES

An elegant rear, sleek side profile, and aggressive front with its deep gaping maw of a grille—this is how the Levante presents itself from a purely outward perspective. In the cabin, the Maserati appears somewhat dignified, with large areas of leather and—a first in series production—silk fabrics by Zegna. The infotainment and assistance systems are practical and are complemented by a 360-degree camera.

ATTENTION-GRABBING SOUND

Right from the start the Levante shows what it's made of: the roaring sound emanating from the valve-controlled exhaust of the six-cylinder is second to none. Its acceleration from 0 to 100 km/h in 5.2 seconds and top speed of 264 km/h are also practically unheard of in this class. The turbocharged engine puts out 316 kW (430 HP) and delivers 580 Nm of torque. MAHLE supports the power pack with pistons, piston rings, valve seat inserts, valve guides, cylinder heads, air filters, air conditioners, condensers, cooling modules, and thermostats.

MAHLE PRODUCTS ARE USED IN VEHICLES AND ENGINES FROM THESE BRANDS:

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1 A4 ALLROAD QUATTRO

The new version of the A4 all-road vehicle contains technology that the Ingolstadt-based company wants to gradually introduce into other models. "Ultra" technology means that the two rear wheels normally run along decoupled and the Quattro mode is only switched on during fast cornering, supposedly reducing fuel consumption by 0.3 L. The new A4 Allroad has six engine types—one petrol and five diesel—with power outputs ranging from 110 kW (150 HP) to 200 kW (272 HP). On-board components from MAHLE: pistons, connecting rods, piston rings, piston pins, bearing bushings and liners, valves, air intake modules, oil filter modules, HVAC controllers, and air conditioners.

2 MINI CONVERTIBLE

Although the fun British car has grown 98 mm in length, 44 mm in width, and 7 mm in height, the new generation is still very much a MINI. This is particularly evident in the Convertible's luggage compartment, whose capacity of 215 L can hold 25% more, although this is reduced to 160 L when the top is down. This now opens both faster and more quietly in 18 seconds. The MINI makers also have a host of other technical gimmicks to offer—including a Rain Warner app in the infotainment system. MAHLE contributes to the driving pleasure with its pistons, circlips, connecting rods, piston rings, piston pins, valves, valve covers, oil mist separators, oil filter modules, oil pumps, HVAC controllers, condensers, coolant radiators, engine fans, intercoolers, cooling modules, wastegate actuators, and EPS motors.

3 MERCEDES SLC

Owing to its technical proximity to the C-Class, the popular SLK roadster was rechristened SLC and given a facelift. It now boasts new headlights, a standard diamond grille, revamped apron, and a larger, 7-inch infotainment screen in the cabin, for example. Needless to say, when it comes to having sporty fun in the new SLC, it's what's under the bonnet that really counts. Five different engines are in use, ranging from the basic SLC 180 version with 115 kW (156 HP) through to the AMG SLC 43 version with 270 kW (367 HP). And from MAHLE: pistons, piston pins, camshafts, valves, valve guides, valve seat inserts, air filters, air guides, oil mist separators, air intake modules, oil coolers, oil filter modules, oil filters, air conditioners, and intercoolers.

4 VW T6 PANAMERICANA

The Wolfsburg-based company has developed a PanAmericana version of their Transporter T6 for longer distances. And it has several new innovations to offer: the robust camper van is not only 2 cm higher but comes optionally equipped with 17- or 18-inch wheels. To make it more capable off-road, the front and rear bumpers have a scratch-resistant coating as well as a designer underride guard at the front and rear. For the first time ever, the T6 is available as a front wheel drive as well as a four-wheel drive. As a 2.0 L twin-turbo diesel, it delivers 150 kW (204 HP). The contribution from MAHLE: pistons, connecting rods, piston pins, valves, oil filter modules, air conditioners, coolant radiators, and intercoolers.

5 NISSAN NP300 NAVARA PICK-UP

The Japanese have remoulded the fourth generation of their mini-pick-up—in terms of the frame, chassis, steering, transmission, and engine—and want to turn the work truck into a lifestyle car. Nevertheless, the NP300 Navara is more than capable of carrying a 1-ton payload and pulling a 3.5-ton trailer load. In addition to lots of chrome on the radiator grille and a great deal of technology in the cockpit, the most important innovation is the double cab's rear axle: a coil spring axle that provides significantly greater driving comfort off-road. Under the bonnet, you'll find a 2.3 L four-cylinder turbocharged diesel engine with the option of either 118 kW (160 HP) or 140 kW (190 HP). MAHLE contributes pistons, circlips, piston pins, valves, valve seat inserts, valve covers, fuel filters, fuel filter modules, exhaust gas recirculation, and intercoolers.

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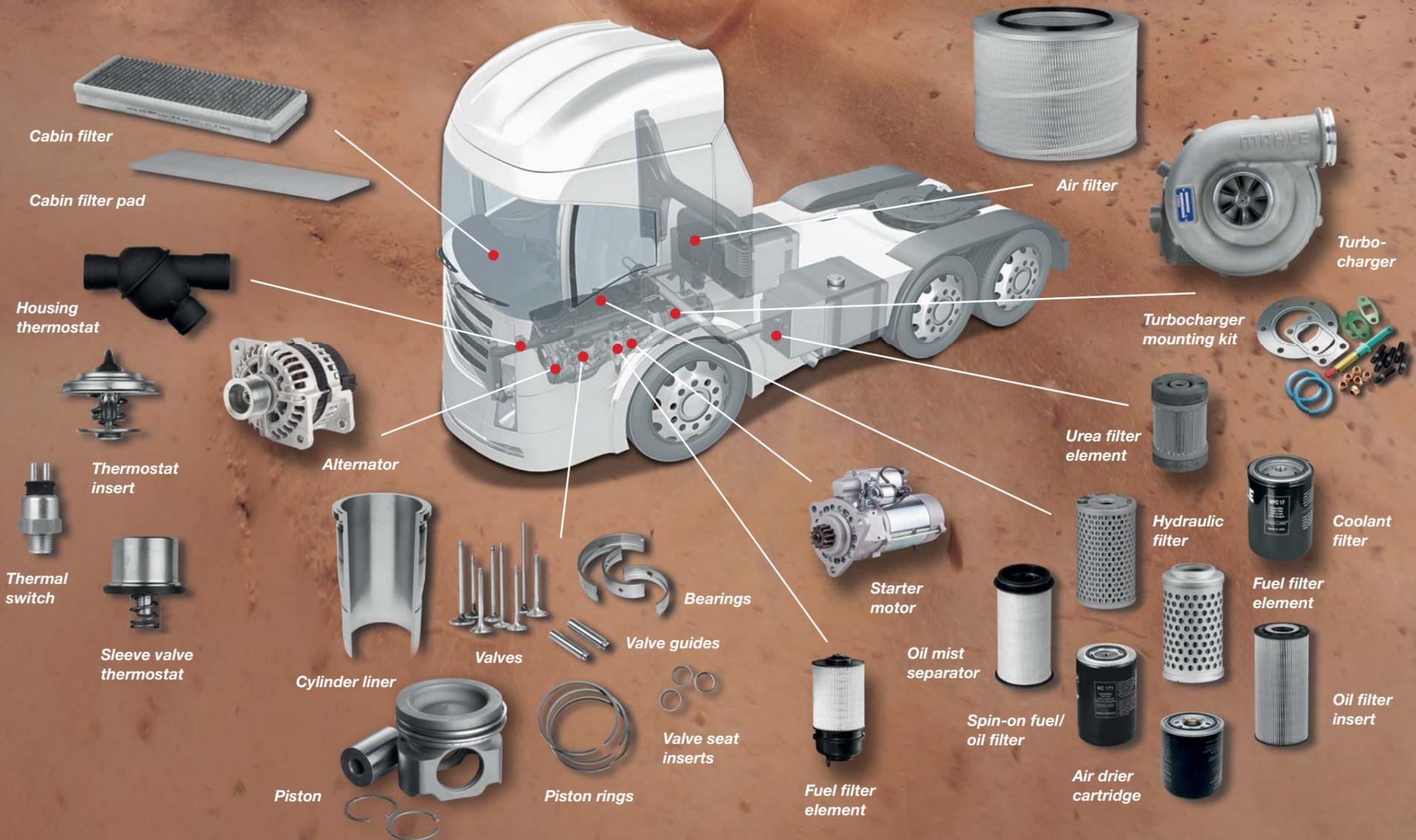
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