

HOW IS MADE: AL-KO AMC CHASSIS

We have visited the AL-KO factory in Ettenbeuren, Germany, where the AL-KO AMC chassis is produced. Now we are going to tell you all about the secrets of this world-famous chassis.

Words Michel Vuillermoz



We have visited to the AL-KO industrial pole of Ettenbeuren, located approximately 10 km from the Koetz headq uarters. Developed on a total area of 54,000 square meters (of which 8,300 are roofed), the plant employs 85 people and can accommodate up to 1,500 vehicles including vehicles awaiting to be processed, vehicles under development and chassis ready to be delivered to the installers. Of 14,000 AL -KO AMC chassis produced each year, 9,000 come from this factory. AL-KO AMC stands for AutoMotive Chassis, but it is not a mere chassis, as it consists in a true system of services engineered and developed to create tailor-made solutions and products suitable for any need, always targeting quality and safety. Since 1980, AL-KO has produced over 225,000 AMC chassis for campers, with over 14,000 units manufactured per year for several base vehicles (Fiat Ducato, Peugeot Boxer, Citroen Jumper, Mercedes-Benz Sprinter, Volkswagen Transporter). Manufacturing plants are located in Germany, Italy, France, United Kingdom and Australia and



cover a wide range of requirements. The most widely used vehicle is Fiat Ducato, but AL-KO is also Volkswagen's "Premium Partner" for the Transporter - AMC chassis combination and Mercedes-Benz's "Van Partner" for the Sprinters.

How a AL-KO chassis is made

Whenever a fresh tractor unit arrives to AL-KO, the factory personnel is already exhaustively informed about the manufacturer customer's name as well as all the specifications concerning the chassis construction, the type of suspensions, and equipment that will accompany the mechanical base during the whole implementation process. The units awaiting to be processed are stored in a huge parking area within the factory until the beginning of the operations that start with the detachment of two tractors and the installation of a rear bracket that allows the cabins to remain balanced on the front wheels. Any individual tractor is then transported to the beginning of the production line with special tractors: once detached, in fact, a tractor cannot travel on its own wheels. When the tractor enters the production line, specialized workers begin to assemble the AMC chassis: galvanized steel -made side and cross members arrive from the nearby factory of Kleinkoetz, where the automated warehouse management provides in due time the various assembly lines with all the necessary components so as to facilitate a constant workpiece feed. An AL-KO AMC ladder chassis is strong and lightweight and allows you to take off up to 50 kg compared to a comparable original chassis featuring leaf-spring rear suspensions: besides a definitely more pronounced automotive setting, with independent axle and wheel suspensions, the German company's products are provided with suitable ribbed and reinforced lightening millings as well as with all the holes needed to assemble the various chassis components. The latter are joined by stainless steel bolts and nuts, the tightening of which is checked and certified by means of torque wrenches: every nut examined, then, is smeared with red paint to indicate that due checks have

been performed. Depending on the installer's needs as well as on the interior configuration of the vehicle that will be built on the chassis, reinforcements and anchors for the totem hosting the seat belts in the passenger cell will be added as well. Before being attached to the tractor, the chassis is added with the rear axle: made by AL-KO, it offers an independent wheels system available in combination with three different tracks (the Ducato's standard, 186 cm, the enlarged one, 198 cm, and the extra-large from 210 cm) and with different types of suspensions. The AMC standard version axle features a steel torsion bar complete with special double-effect shock absorbers. The rear axle is equipable with automatic control-

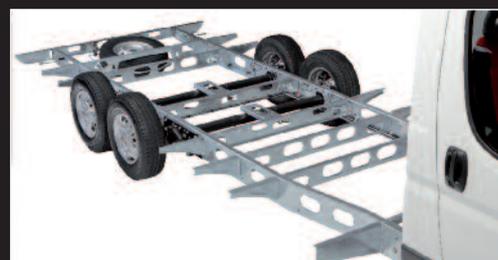
led full air suspensions: the AirPremium X2/X4 Air Suspension system, made by AL-KO especially for the AMC chassis, allows, in fact, the rear axle height to be raised by a maximum of 6 cm or lowered by up to 7 cm with integrated air supply system with air dryer, so as to obtain the optimal chassis arrangement and ensure excellent driving stability. Depending on the suspension system selected, the chassis is equipped with the rear axle which the hubs are placed on: complete with disc brakes, they are the same as those used by Fiat for the "standard" Ducato vehicle so as to ensure the maximum ease of finding spare parts for all wearable parts. The AMC chassis is then ready to be matched the tractor: exploiting the suitable flanges

AL-KO and Fiat

The available AL-KO AMC variants are infinite. They intertwine with the wide range of options featured by the Fiat catalogue, such as two tractor variants (Light or Heavy), four motorisations (115, 130, 148 and 177 hp), two transmission types (manual or Comfort-Matic automatic gearbox) and a complete range of available accessories (especially those aimed at safety, such as double Airbag-ABS-EBD-ESP-ASR- Hill-Holder - Cruise Control) with the addition of further custom-tailored chassis processing for any installer (crossbars, junctions, brackets): the Ettenbeuren plant, the Italian branch of Castel d'Azzano or the French and Australian subsidiaries deliver a true world of services aimed at convertible vehicles. This represents a sort of accomplishment of a path that starts far away and finds here its genesis and fulfillment. The galvanized steel-made side members used for the AMC chassis, the axles and

the connecting flanges between the cab and the AMC chassis, in fact, are produced by AL-KO in the Kleinkoetz maxi factory, located 9 km from Ettenbeuren: the flanges, in particular, are sent to SEVEL (Società Europea Veicoli Leggeri), located in Val di Sangro, Italy, where the Fiat Ducato, Peugeot Boxer and Citroen Jumper are produced. In this huge industrial pole, which is the largest commercial vehicles manufacturer in Europe, the AMC chassis-equipped Ducato's life begins: instead of the original Fiat chassis, in fact, the vehicle is factory equipped with the aforementioned flanges and it is coupled to another tractor vehicle before being loaded onto a lorry and transported to the AL-KO production unit.





produced by AL-KO and installed directly at Sevel, they implement a cup coupling with special embossings, a patented system that offers a perfect fit between the chassis and the vehicle cab. Now the chassis starts to take shape: the driver's cabin is no longer supported by a rear bracket but, equipped with a strong galvanized steel – made chassis, is ready to be connected to the brake system. Prior to this step, however, there is an intermediate stage that involves two types of chassis: those which are required to be equipped with the AirPremium X4 self-levelling suspensions and those which will come out equipped with the new ALKO Comfort Suspensions instead. If, in the first case, the complete chassis mechanics is moved to a special line in which the operators install the complex vehicle levelling automated control system, the Fiat Ducato's standard front suspensions replacement with AL-KO ACS will be a quick and simple job. After the suspensions and braking system installation, the vehicle can then receive its set of tires (usually Michelin Agilis Camping or Continental Vanco Camper) and the related rims (steel-made, complete with plastic or alloy-made wheel covers, according to the various installers' proposals), before undergoing scrupulous final checks, which concern the brake system oil filling up and draining, the perfect toe and camber of each axle and the brakes strength. At this stage also the relevant ESP software version is flashed. High emphasis is on driving safety and leading driving dynamics. Together with Bosch Engineering and the base vehicle suppliers a larger set of ESP software versions has been developed to reflect the wide range of wheelbases and rear overhangs of AMC chassis. Only once all the tests have been successfully completed, the completed chassis receives its own punched tag (located in the engine compartment next to the Ducato's)

and can leave the production line to be transferred to the ready-to-be-installed chassis storage facility, waiting for a transporter to carry them to the factory that will turn them into campers.

Custom-tailored AL-KO AMC

AL-KO works in synergy with both basic vehicles providers and installers. There is not a single chassis version for each manufacturer, but a single chassis version per model. In fact, the AMC standard chassis does not exist at all: everything is decided and implemented depending on the installer's needs, who may choose the wheelbase, the side member height (lowered by 22 cm to allow the creation of a passing double floor, lowered by "only" 14 cm to allow the body interchangeability between a Fiat Camping-

Car Special chassis and an AL-KO AMC), the wheelbase (up to a maximum of 434.3 cm for a single-axle and 470 cm for a dual axle), the rear track (186, 198 or 210 cm), the type of suspensions either front (Fiat standard, AL-KO Comfort Suspension or self-levelling AirPremium X4), or rear (Standard, air AirPlus, complete with AL-KO Level Control ALC, rear self-levelling AirPremiumX2 or full self-levelling (front+rear) AirPremium X4), the exhaust terminal placement, reinforcing structures promoting the ease of set up and the rear structures apt to lengthen the tail of the vehicle depending on the total length, the body type, the rear cargo area presence or absence) and the possibility of factory installation of the towing hook or motorcycle rail, both made by AL-KO.

AL-KO and Mercedes

AL-KO offers low-frame chassis as well as chassis conversions for the 3,5 and 5to highframe-chassis for Mercedes-Benz Sprinter. As to the Mercedes Sprinter, AL-KO proposes the extension of the wheelbase (and, consequently, of the chassis and drive shaft) for the cabs and the armored 516CDI and 519CDI (with a wheelbase that can change from the original 432.5 cm to 510 cm), the extension of the rear overhang by means of suitable side members that will support the tail of the vehicle and the increasingly widespread garage, featuring at the same time also the towing-hook and motorcycle rail anchor, or the entire chassis replacement with a special version of the rear-wheel drive AL-KO AMC, available with single (Sprinter 316 and 319CDI, with a total mass of 3500, 3880 or 4200 kg), or double rear axle (Sprinter 619 CDI, with a total mass of 6000 kg, double rear axle with self-levelling air suspension and possibility to be combined with Telma retarder).

