

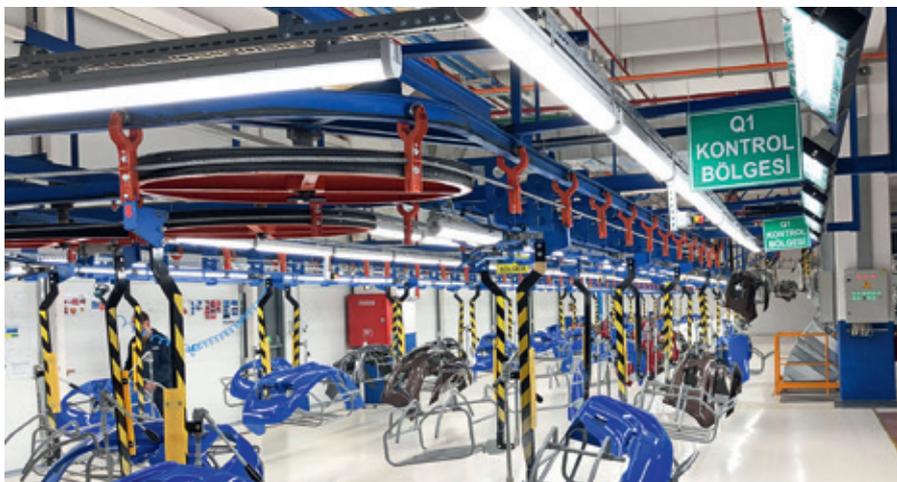
A-PLAS perfects bumper production with KraussMaffei

For automotive component supplier A-PLAS it is self-evident: when a supplier relationship becomes a partnership, both parties benefit. By *Plastics News Europe*.

Turkish Tier 1 automotive component supplier A-PLAS is not a company that does things by halves. When it needed more space, it built an entire plant around a single product: bumpers.

Tier 1 suppliers in the automotive industry are under huge pressure to evolve and adapt to the rapid changes taking place within the industry. The large number of variants, cost pressures and just-in-sequence delivery combined with development deadlines, launch dates and strong competition: the demands in the automotive sector are strict and exacting, which, according to Ahmet Ağaoğlu, managing director at A-PLAS and the son of A-PLAS founder Arif Ağaoğlu, can only be met with sophisticated technology and lean production.

Headquartered in Demirtaş OSB (Bursa), family-owned A-PLAS has since its founding in the late 1980s pioneered the use of innovative techniques to manufacture top-quality components for its customers around the world. The company has consistently invested in the facilities and machines needed to meet its customers' every-increasing requirements, and



Bumpers are produced and configured just-in-sequence

when it does so, it does it right. When Ahmet Ağaoğlu decided to build a third production plant – the first to be completely designed for the production of bumpers for its main clients, Ford and Fiat – his meticulous planning meant that it could be completed in just 18 months. The plant, equipped with MX machines from KraussMaffei, has been in operation since 2016.

On the lower level of the plant, three MX machines from KraussMaffei with clamping forces of between 16,000 and 32,000 kN produce the PP / ABS / EPDM bumpers. A six-axis robot detaches the sprue automatically and flame-treats the bumper to activate the surface. Next to this is the painting system, where the components are coated in the color of the car. They are then transferred onto the elevator to the first floor, where the final assembly takes place. At this point, careful attention is required: if a Fiat customer has ordered a red vehicle with fog lights and parking sensors, these must be mounted accordingly, while the next bumper coming off the line might be a grey one without extras, followed by the next which might specify LED headlights. The A-PLAS team delivers in the exact sequence that the OEM has planned for its production program. After inspection, the ready-to-install bumpers are packed and loaded. Even the truck ramp with its own access road is positioned exactly where the components are finished in the plant, for short, time-saving runs.

No interruptions must be allowed to upset this finely tuned rhythm. For

A-PLAS, what counts is being able to rely on machines that are suitable for continuous operation and technical service available around the clock. The company bought its first KraussMaffei machine in 2004 and has remained with the brand since. KraussMaffei works with a Turkish sales and service partner, Tepro Makine, whose technical office is located in Nilüfer / Bursa, conveniently close to A-PLAS. This makes predictive maintenance and a fast supply of spare parts simple. As Ağaoğlu says: "Together, KraussMaffei as the manufacturer and Tepro as the agent provide us with a machine pool that meets our expectations for the highest quality and service entirely. We absolutely have to avoid any breakdowns in production because we generally keep our buffer stock to a minimum. High availability of all components is a fundamental requirement."

Today, a total of nine MX systems with clamping forces between 16,000 and 32,000 kN run at the three A-PLAS locations at which, next to bumpers, car body ornaments are also manufactured.

Employing a workforce of 800, the company supplies customers in Turkey and the United States. It became a Tier 1 supplier in 1993, only five years after the founding of the company. Currently, the company has a team of nine employees solely focused on research and development, which demonstrates the importance of innovation and forward-thinking at A-PLAS. The company partners with their customers, working with them to develop new trends.



Cem Saygın (General Manager, TEPRO), Peter Ils (Sales Manager Turkey, KraussMaffei), Hasan Ağaoğlu (Assistant General Manager, A-PLAS) Murat Işgöz (Factory Manager, A-PLAS)

A-PLAS is also forward-thinking in the use of new technologies and in taking advantage of the latest developments in injection moulding machines. It was the first manufacturer of bumpers in Turkey to use electronically controlled needle shut-off nozzles. Unlike hydraulic and pneumatic systems, in which the shut-off needle can only occupy the start or end position (open or closed), electronically controlled needle shut-off nozzles offer the option to carry out steps in fractions of millimeters. As a result, joint lines or flow lines are avoided during cascade injection molding. These are costly mistakes – especially when large amounts of plastic are used, as is the case with bumpers – that emerge only during the subsequent painting.

The APC (Adaptive Process Control) machine function on the KraussMaffei machines also plays a part A-PLAS's striving to achieve a zero defect level of manufacturing. Factors such as ambient temperature, humidity or batch fluctuations in the material influence the injection molding process and lead to slight changes in the melt viscosity, which, in turn, affects component weight. APC offsets this and regulates the changeover point from injection pressure to holding pressure from shot to shot. This results in parts that are extremely



A total of four KraussMaffei MX machines form the foundation for the production of bumpers at the plant in Bursa

consistent in terms of weight. "Using APC, our process reliability is extremely high and we can further decrease the scrap rates. Flashing during batch fluctuations is now completely preventable and with that, splitter problems in some molds," Ağaoğlu noted.

As a result, the MX 3200-24500 with APC is now the new machine standard at A-PLAS and its smooth 24/7 operation and repeatability is appreciated. The company, however, is looking ahead at further technological developments, such as lightweight construction processes, such as FiberForm, in which the organosheets are encapsulated, or surface technologies such as ColorForm. With the latter technology, the com-

ponents come out of the mould finished with a scratch-resistant, coloured PUR coating, which eliminates conventional painting steps. As product design is also part of A-PLAS's business, new technologies can be integrated into a pending project very easily.

Industry 4.0 is another area where the company sees opportunities. In the medium term, a high level of connectivity will make autonomous production possible, by linking machines and peripherals in a network. In the vision of Ağaoğlu, an online factory with lights-out manufacturing should be possible by 2020. Currently, A-PLAS is working with service providers to get logistics reports on mobile end devices.

QUALITY STABILIZES.



When things start heating up, you need to keep your cool. As modern engines get ever more compact and powerful, they get hotter too. With **Durethan® XTS** you are justifiably putting your faith in high-performance materials that remain composed even in extreme situations thanks to their extraordinary heat stability. Find out more about the excellent performance of our new XTS grades by visiting www.durethan.com

X Durethan®

**QUALITY
WORKS.**

LANXESS

Engerizing Chemistry