Press Release | Presseinformation | Communiqué de presse | Communicado de prensa | Comunicato stampa | Пресс-релиз | Imprensa | Persbericht | Notatka prasowa

Machines for Elastomers, Silicones and TPE

Small Rubber Parts – Big Effect

Patented locking device for the VW shift gate of KKT Frölich

Ternitz (A), 27.05.2013: The thinning of suppliers at VW has led increasingly to development partnerships. VW would like to process, together with partners, high value solutions through a one-stop operation. Here come in medium-sized companies which as specialists offer very interesting technical solutions. We are informed by KKT Frölich, the elastomer processor in Osterode am Harz, what kind of technology is behind these development partnerships.

In the office of Klaus D. Wahle, the technical director, one can see a row of technical parts which are produced by elastomer engineering. These include unusually many complete assemblies. Among the specialties of KKT are the shift gates which are the part every driver uses frequently in the day without knowing what technology underneath the sheath conceals.

Locking Device Assembly of a VW Shift Gate

An assembly is the locking device. It provides a vehicle with a gearbox produced by the VW group for smooth switching - from top to bottom and from right to left. Technologically interesting is the elastomer part which was developed by VW and KKT. This part inhibits the transmission of vibration, which is brought about by the gearbox, to the gear knob. The product idea has transformed VW and KKT jointly since 2004 in a development project by substituting an elastomer part for the die-cast component. KKT took care of the design, the FEM calculation of the parts, their further development and production-technical adaptations, the choice of materials and of course their manufacturing and delivery. The locking device was later registered as a joint patent. KKT developed the geometry of all parts for the required attenuation characteristics as well as the materials, the complete manufacturing layout and the assemblage structure.

An Idea for the Entire Vehicle Fleet

There are different versions of the component which can be delivered as a finished part or assembly part - for all vehicles with gearbox. "This refers to," says Klaus D. Wahle, "all vehicles of the group, such as VW, Seat or Skoda. On the basis of a 5 working day model, we produce 6-7 million parts per year by using three elastomer machines."

Extensive Know-how of KKT

The core competencies of KKT undoubtly include its material knowledge of elastomers in production, but also the formulation and compounding of elastomers. The core competencies of KKT include mixing rubber and silicone. We can deliver all RAL colours and Shore hardness from 5 to 85 ShA. Furthermore KKT knows all the relevant standardizations and material releases in the automotive, aerospace, medical engineering, military engineering and safety engineering sectors. Experiences in multi-component technology, process-oriented packaging, application compatible development and test procedure are additional to the KKT's understanding of the features of elastomers. KKT in general manufactures moulded components of 0.2 to 10,000 g, including parts in thin-wall technology, such as membranes or very complex geometries with difficult undercuts. The requisite knowledge for the locking device goes far beyond the familiar elastomer technology. After all, in the case of elastomer parts, it is a matter of a multi-component part which consists of a base body made of polyamide PA 30GF with inner sheath which is incorporated in the assembly injection moulding as a single stage process or by subsequent assembly. The sheath is contained in a 5g heavy elastomeric component which is made of NBR. The assembly of course includes metal springs or thermoplastic elements. KKT manufactures all elements in the assembly. The assembly "locking device" has 7 components and the entire shifting gate has 32 parts. The KKT delivers assemblies which are ready-to-mount and have received final inspection on the assembly lines of the VW group.

Elastomer Production Using Sophisticated Machine and Tool Technology

The locking device as a multi-component part is manufactured using a 2x32 cavity mould. While the operator feeds the 32 cavities with sheaths and PA parts, the NBR material is vulcanized in the vertical elastomer machine. With a cycle rate of 4 minutes, at which 32 cavities are filled with 5 g of rubber mixture, the operator must be very quick. "We will soon develop an automation solution, so that the process can run independently of the operator - it pays off for the large number of items," says Klaus D. Wahle. "Our tools have a tuned cold runner system with short flow paths in order to save material and to produce less waste rubber. In conjunction with Maplan's machine engineering, a high process reliability is achieved. Among the latest machinery for this process there is a MTF2500/280ergonomic with PC5000touch control by Maplan. The Maplan machine, optimized for operation height, is ideal because of its accessibility. It is very user friendly and also, through the use of the latest technology, very energy efficient", said Wahle. The energy advantages arise from a "Cool-Drive II" servo-hydraulic system and the temperature control devices in energy-saving DCI design. The center plate shift is powered electrically. KKT has been using machinery from Ternitz for many years.

Assembly together with a QA

AT KKT, in addition to manufacturing, the assembly which is highly automated with numerous sensors for part check is also a highlight. Thus, a so-called characteristic curve test can be performed, but also classic tensile and compression tests, and the test of damping properties. Although it is shown to the visitors, taking photographs here is of course not desirable.

Reprint permitted – Copy requested

Caption 0 (Feature photo): "Vibration Inhibitor" for the VW gear: KKT locking assembly

Caption 1a+b: Patented multi-component part of the locking device consisting of sheath, NBT absorption and PA 30GF carrier

Caption 2: KKT gearing assembly - everything from a single source, from development to production

Caption 3: Klaus D. Wahle, technical manager at KKT Frölich: "With its low operating height, the Maplan machine offers an ideal accessibility to the mould area. The machine is very user friendly and also, through the state of the art technology, very energy efficient. "

Caption 4: Production on a Maplan vertical elastomer machine with 2x32 cavities

Caption 5: Klaus D. Wahle, technical manager at KKT Frölich: "Our tools have a tuned cold runner system with short flow paths in order to save material and to produce less waste rubber. In conjunction with the machine technology of Maplan, high process reliability is achieved."

Caption 6: Newcomer in Osterode: MTF2500/280ergonomic with Maplan's PC5000touch control

Maplan at K 2013, Düsseldorf: Hall 16 Stand B47

Contacts

MAPLAN GmbH

Schoellergasse 9

2630 Ternitz

Austria

Tel.: ++43/2630/357 06-0

E-Mail: office@maplan.at

Internet: www.maplan.at

KKT Frölich / KKT Holding GmbH

Friedrich-Ebert-Straße 208

37520 Osterode-Lerbach

Germany

Tel.: +49 (0) 5522 5091 – 0

E-Mail: info@kkt-group.de

About Maplan

Maplan was founded as a plant engineering company under the name "Maschinen und technische Anlagen Planungs- und Fertigungs-Ges.m.b.H." in the south of Vienna in 1970. From 1993 onwards the division "rubber injection moulding" has been further expanded, starting with the takeover of company Werner & Pfeiderer Gummitechnik.
MAPLAN covers the various requirements of vulcanisation and injection moulding in elastomer processing with a modular design system. All drive (CoolDrive II) and controller (PC5000touch V3) elements are used for both elastomer technology processes, to ensure precision, repeatability and availability. For application-compatible processing, high-precision FIFO injection units from our "work shelf" are available. The orientation and development of Maplan's machine programme focuses categorically on energy-efficient, process reliable and compact solutions to improve the processors' net product.

The company manufactures 250 elastomer injection moulding machines with a clamp force between 150 to 12 000 kN and an injection volume of 10 to 30,000 ccm each year.

All mechanical components of machine technology are produced by European manufacturers with a correspondingly high quality level and longevity.

The export share is 99%. Additionally to the production location in Austria, MAPLAN is represented by a number of service- and sales offices in more than 60 countries worldwide.

At the moment, MAPLAN has 160 employees at the headquarters in Ternitz/ Lower Austria (a total of 195 people worldwide) and generates revenue of 40 million EUR (2012).

MAPLAN - The Elastomer Champion