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Anders Guldbæk Christensen, Sales and Marketing Director, and Peter Lorentzen, Managing Director.

**As in all other industries around the world, one of the greatest challenges for AVK GUMMI right now is the rapidly increasing raw material prices, which in part is caused by a shortage of several raw materials types. By maintaining good business relations and focusing on rationalisation and automisation of the manufacturing processes, we have prepared ourselves for these challenges.**

"The steep increase in the price of energy and raw materials has affected the entire value chain and is a great internal challenge to us as we must be able to offer our customers security of supply at all times and at the same time ensure a continued performance without constantly having to change the prices," says Peter Lorentzen, Managing Director.

"It is a great challenge finding the right balance between on the one hand the development in the raw material market and on the other the present and future needs of our customers with respect to security of supply and innovative solutions. Therefore, a close cooperation with our customers together with continued innovation within materials and processes is required," says Anders Guldbæk Christensen, Sales and Marketing Director.

In order to maintain and improve our competitive position in the market it is more important than ever to focus on rationalisation and automisation of the production processes. Therefore, AVK GUMMI has just expanded the production with three robots, and further similar

projects are in pipe line. "Optimising the production processes may thus help us consolidate the position of the company in the market and at the same time give our customers a sense of security and certainty that AVK GUMMI is a competent and loyal partner," says Peter Lorentzen.

"As always, AVK GUMMI has high focus on delivery performance, and with the present situation on the raw material market, the most important thing right now is to ensure that we have access to the required raw materials. This is where the many years of close cooperation with our carefully selected suppliers really proves its value. In a time like this, it may be difficult to get access to all the raw materials, but based on the close relationship with our suppliers, we have secured deliveries until the end of 2011 and also given forecast for 2012.

We keep a close eye on the situation on the raw material market, and through monthly meetings with our suppliers, we make sure always to be at the forefront of development," says Peter Lorentzen.

"In the present situation with the shortage of several raw material types it is very important that we receive qualified forecasts from our customers," says Anders Guldbæk Christensen.

With the raw material situation in mind, the fact that we still see an increase in the growth rate, especially on the German and the Chinese market, is positive. The growth rate of 2011 is, however, more moderate compared to 2010," concludes Peter Lorentzen.

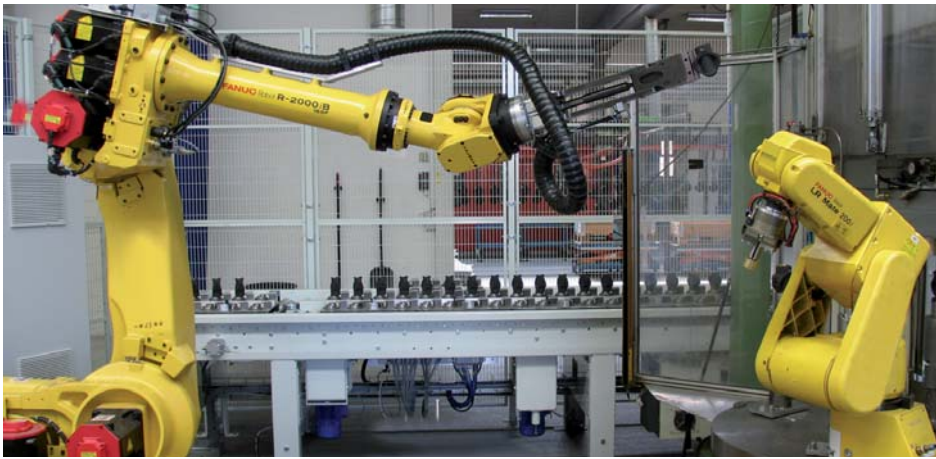
## Items up to 2 Metres in Size

- Investment in new robots and a specially designed high capacity machine

**AVK GUMMI moves the limits for moulding large rubber items and is constantly focused on optimising the production processes. With such initiatives we can guarantee**

**our customers optimum technical solutions and thus maintain a leading position in the market.**

As the most recent initiative, AVK



Robot for handling valves for the drinking water industry.

GUMMI has invested in a specially designed transfer and compression moulding machine with a capacity of producing items of up to two metres. With a clamping force of 3,800 tonnes and a stroke of 800 mm, this unique multi-purpose compression machine can handle very large rubber items.

The machine has a number of special

features and extra equipment, including e.g. hydraulic outlet for transfer injection and a movable bedplate.

"For a long time, AVK GUMMI has been wanting to produce gaskets for heat exchangers as well as large scale gaskets and liners," says Erik Cornelius, Technical Manager, and continues: "With the expanded capacity of this

new machine, AVK GUMMI can now produce items of a much higher calibre than previously, which most definitely helps us strengthen our position in the market."

### Robots give a helping hand

The production of AVK GUMMI has yet again been expanded with the investment of three robots – two for handling valves for the drinking water industry and one in the form of an automatic truck operating 24 hours a day.

The main purpose of the robots is to make the production processes more efficient and to improve the working environment – the latter, among other things, by letting the robots handle heavy lifts and repeated, monotonous operations. Finally, the implementation of the environmentally friendly robots helps reduce the overall energy consumption and ensures a uniform quality of AVK GUMMI's products.

## New Rubber Qualities for the Food Industry

**For many years, AVK GUMMI has produced rubber qualities for butterfly valve gaskets and other gaskets for different applications within the food industry. We are continuously working on developing and optimising these compounds in order to achieve unique results and to be able to offer our customers the best rubber qualities on the market.**

Therefore, we now have the pleasure of introducing the next generation of rubber qualities for butterfly valve gaskets. Please see below overview of the original and the new rubber qualities:

Rubber Type	Original Rubber Quality	New Rubber Quality
EPDM	EAF-70	EAF-75
FKM	FBF-70	FBF-75
HNBR	HBF-70	HBF-75
Silicone	QRB-70/QPF-70	QCF-75

Table 1. Overview of the original and the new rubber qualities.

### An even lower friction results in a reduced closing torque

One of the main objectives of the project was to allow our customers greater freedom in the design phase of the development of new products. With a low friction it is possible to reduce the size of the actuator, which economises

both on energy consumption and on costs.

Furthermore, a reduced closing torque throughout the lifetime of the gasket means that the maintenance costs of the entire plant may be minimised. Finally, the lower friction results in a reduced risk of the gasket being torn out under extreme flow conditions.

### An even lower compression set results in improved sealing properties

Another important objective was to reduce the permanent deformation where possible. In the case of EAF-70, we were already close to having reached the ultimate compression set, but in the case of QCF-75 we have achieved significant improvements compared to QPF-70.

### Improved mechanical properties increase the lifetime

For some rubber qualities the project has been quite revolutionary. For instance, the mechanical properties of the silicone rubber quality, QCF-75, have improved considerably, which means that the lifetime of QCF-75 is twice as long as that of QRB-70.

### Increased elasticity modulus reduces the risk of the gasket being torn out

One of the main objectives for all the materials was to increase the torsion stability. In some cases it has also been possible to increase the tensile strength.

Tables 2 and 3 show the most significant improvements in connection with the development of the new rubber qualities.

### Compression Set

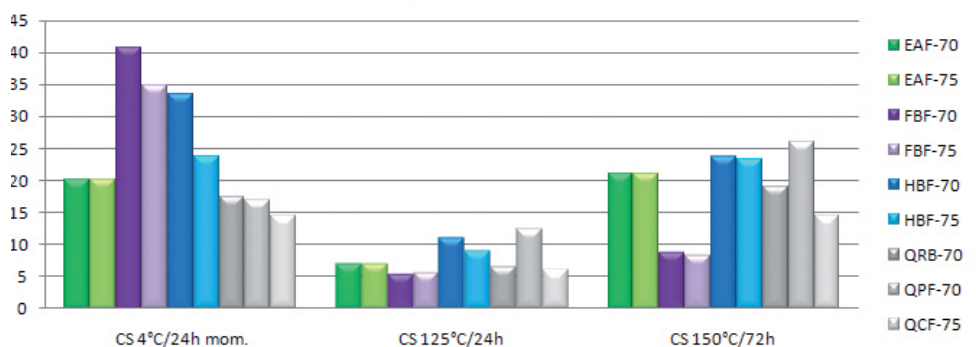


Table 2. Compression set for the 4 rubber qualities, old vs new.

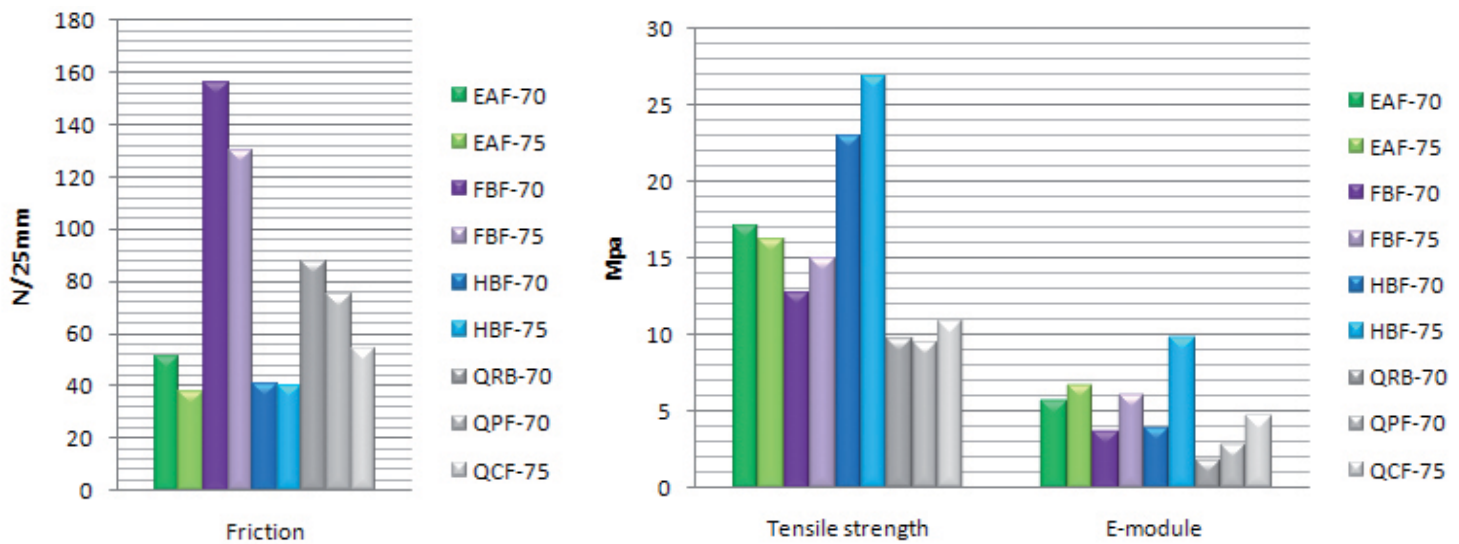


Table 3. Friction, tensile strength and E-module for de 4 rubber qualities, old vs new.

From the start of the project it was a precondition that all other properties should be kept on the same level.

### The background of the project

Originally, the target of the project was to develop a new silicone rubber with improved mechanical properties. However, soon it became clear that the implementation of new materials for butterfly valve gaskets would require very specific documentation both by AVK GUMMI and by our customers.

Therefore, we chose to include a number of additional customer requirements in the specification and to incorporate this in a joint project that would not only apply to silicone, but also include EPDM, HNBR and FPM.

In connection with this, it was also agreed that the hardness should be increased to 75 °Sh A.

### Target group, release and time frame

The target group for this new generation of rubber qualities is to be found within the food and healthcare industries and particularly amongst manufacturers of equipment for the processing industry.

In connection with the release of the new rubber qualities, AVK GUMMI is well aware that our customers will need thorough testing of the new qualities, and that an adequate transitional period will be necessary.

The production of test samples is well under way, and we follow the plan carefully in order for us to satisfy the demands of our customers in the best possible way.

### External approvals

The new rubber qualities have been developed according to FDA 21 CFR 177.2600 and all conform with 3-A

Sanitary Standards (18-03) and USP Class VI.

Once the documentation has been completed, there will be a transitional period. However, after this it will still be possible to purchase products in the old rubber qualities in which case the production will be treated as a special production.

"It is important for AVK GUMMI to maintain a high level of innovation at all times – even if the products already perform satisfactorily. We know that our customers require optimised products at any time – especially with respect to energy consumption and improved functionality. Therefore, we are convinced that the release of our new generation of rubber qualities will be a great success," concludes Anders Guldbæk Christensen, Sales and Marketing Director.

## Lean Philosophy - 5S Tools

**After having worked with the implementation of lean within the different departments of the organisation for quite some time, AVK GUMMI took a closer look at the effects of this, both for the company as a whole but also for the employees involved.**

We will base our study on the intensive work that we have carried out during the implementation of lean in the component department, the area in which metal, plastic, fabric and film materials are handled. One of the main objectives of the project has been to ensure a shorter transition time of products in the department and to achieve a

rationalisation of the work within the department. The primary focus has been on the so-called 5S Tools: Sort/Straighten/Shine/Standardise/Sustain.

Through targeted courses and in-house training the employees have been introduced to the principles of lean and have been given the right tools. This means that everyone speaks the same language and shares the same goals and objectives.

"Even though we thought that we did everything the best possible way, we found many possible improvements," says Lars Bo Petersen, who after 21 years with AVK GUMMI sees

potential for improvement following the implementation of lean. "Everything has been sorted and systemised, which makes it easier to find things. This has not only simplified the working procedures, but also led to an improvement of the occupational health and safety environment."

As the factory works in three shifts, it is important that everyone is informed of any changes and at the same time has the possibility to come up with suggestions for improvements. Therefore, weekly meetings involving all three shifts have been set up.

"These meetings make the employees

even more committed and dedicated as we are all directly involved in changes, optimisations and the actual description of the work processes," says Lars Bo Petersen. "Ideas and suggestions are more readily realised, and if someone does not agree with a certain procedure, the issue is discussed and a solution is found."

"A list of produced orders is worked out every two weeks enabling us to see what has worked, and what we have spent too much time on. For instance, we consider how we may move more items to the painting robot, which helps us obtain a more uniform quality of the products and also improves the efficiency of the work processes," concludes Lars Bo Petersen.

According to Kresten Krogh, Production Engineering Manager, the project has most definitely led to an optimisation of the flow of components through the department, and the plan now is to carry out a similar project in the mixing plant.



*Kresten Krogh, Production Engineering Manager and Lean Champion together with Lars Bo Petersen, Team Manager at the scoreboard.*

## Chinese Subsidiary Company Certified by Bureau Veritas

**Increased awareness of aspects concerning quality, environment and occupational health and safety in China has motivated certification of AVK Sealing Technology. This is really just a formal matter as the management system of the Chinese subsidiary has been based on ISO 9001, ISO 14001 and OHSAS 18001 from the start of operations in 2004.**

"The system has been updated on an ongoing basis through regular audits performed by AVK GUMMI in order to ensure that the quality of the production in China has always been at the same high level as the quality in Denmark. We decided that the time was now right for an official certification by a third party,

and having gone through the certification procedure without encountering any problems, we are now only awaiting the official certificates from Bureau Veritas," says Tage Bergstrøm, Quality Manager.

AVK Sealing Technology has the same regulations concerning Corporate Social Responsibility as AVK GUMMI in Denmark, which means that quality, environment and occupational health and safety matters are always given top priority. Therefore, all objectives concerning complaints, accident frequency and handling of scrap are equally important. The fact that the actual score is even better only confirms that the organisation has a well-established system.

## New Production Organisation



*Kresten Krogh Production Eng. Mgr. Allan Boch Tonnisen Production Mgr.*

**In connection with the organisational change at AVK GUMMI last year, a restructuring of the production was also carried out.**

As of 1 May 2010, Allan Boch Tonnisen,

Production Engineering Manager since July 2007, took over the position as Production Manager from Peter Lorentzen, now Managing Director of the company. At the same time, Kresten Krogh left his position as Project Manager and continued as Production Engineering Manager.

As a natural part of this reorganisation, all the working processes in the production engineering department were examined and reconsidered. This entire process has most definitely been a learning experience to all and has led to optimisations both within the organisation, but also in our co-operation with our customers.

# NEWS

## Hannover Fair 2011



During the period 4 - 8 April 2011 AVK GUMMI participated as an exhibitor at the Hannover Fair - this time with a new design of the stand.

With more than 230,000 visitors, the world's biggest industrial fair was a great success again this year. We had the pleasure of meeting with existing as well as potential customers and have received a number of interesting inquiries for rubber components.

We thank you all for visiting our stand and look forward to a continuously good co-operation with our customers.



## NEWSLETTER

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