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COMPOSITE PRESSURE TANKS

FANUC for RCN

Task To co-develop an advanced production cell for the manufacture of composite pressure tanks to hold compressed natural gas, Swedish systems integrator RobotCenter Norr AB was looking for a partner. The candidate needed to possess a lot of knowledge, good products and be capable of strong collaboration with everyone acknowledging and relying on each other 100%.

Solution To go with FANUC. "FANUC was an obvious choice for us", says RobotCenter Norr AB's CEO Christer Larsson. "FANUC is good at listening and understands the customer's needs. Besides good products, FANUC has exceptionally skilled personnel who provided us with expertise and training".

Result For the installation, which requires mechanical stability, coordinated movements between several robots and a high-performance control system, FANUC R-2000 and M-900 series ROBOTs were chosen. Summing up the partnership, Larsson says, "In my 30 years of being self-employed, I have never worked with such a reliable and intelligent supplier as FANUC Nordic. Having the combination of a good relationship and good products is invaluable."

FANUC helps RCN with new invention

In 2014 RobotCenter Norr AB began developing the prototype of an individual production unit for manufacturing pressure tanks in composite which, with the help of FANUC's products, will hopefully lead to a breakthrough in the market. Now, one year on, the installation is ready for production.

Christer Larsson, CEO and owner at RCN AB.

During their fifteen years in the industry, RCN in Umeå has delivered and installed complete automated solutions for mid-size and large companies on the global market. Among these are production units for pressure tanks which were initially delivered to Asia, and also led to the idea of making a preexisting solution more efficient and automated. To assist with the project, RCN used FANUC Nordic, which provided robots and expertise.

"FANUC has a very wide product assortment and therefore it has been easy for us to find a robot that suits each individual project. For this reason, we saw an opportunity to be able to develop our own product and have done so".

"We are incredibly grateful for the resources with which FANUC provided us and that we were able to make use of their brand", says Christer Larsson, CEO and owner of RCN.

It all started with Kurt Berglund, Professor of Material Strength, who met Christer Larsson in the first decade of 2000. Kurt has worked in product development and the production of pressure tanks since the 1970's and thought that this could be made more efficient with the aid of RCN's expertise in robot automation. Now, approximately 10 years on, RCN has delivered three installations for the production of pressure tanks in Europe and Asia.

Professor Kurt Berglund, who is an expert in the field, explains more about what this project may mean for the market:

According to the information we have, you already began your own research on the subject in the 70's, what drove your interest?

I have always been interested in the mechanics of both rigid and deformable bodies. The foundations were already laid when I was a child. My brother and I spent a lot of time designing and building things out of wood and

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steel, sometimes successfully, sometimes less so.

When I did my doctoral work at KTH, my supervisor awakened my interest in materials with a visible internal structure. Fiber composites are an example of such material. I was fascinated by the possibilities of designing not just a product such as this, but also tailoring the material for it.

What did the project mean for you from the standpoint of vision, and how might it come to affect the market going forward?

I expect that you mean our so called CCT tanks (Conformable Composite Tank). The disadvantage with CNG (Compressed Natural Gas) is that you need about 3 to 3.5 times as much tank volume with natural gas/biogas as with gasoline or diesel due to the lower energy density of the gas compared with liquid gasoline or diesel. To get such large volumes into normal vehicles in the form of "welded tubes" is not that easy. In steel, furthermore, these are heavy. With another type of tank it is easier to optimize the use of the existing space in the vehicle. I think that this is a must in truly achieving really large scale use of gas.

How has the process of bringing out a finished product together with RCN gone?

I have collaborated with RCN for a long time and we know each other very well. I like long-term collaborations as you can get to know each other's strengths and weaknesses and therefore not need to start over from the beginning each time.

To be able to design and develop such an advanced installation requires a lot of knowledge, good products and very good collaboration with everyone acknowledging and relying on each other 100 %. FANUC was therefore an obvious choice for us, says Christer Larsson.

"FANUC is good at listening and understands the customer's needs. Besides good products, FANUC has exceptionally skilled personnel who provide us with expertise and training".

Dennis Librell, Sales Manager for the Nordic region at FANUC, says that in this project it was difficult to know which robot they should use as the solution is so unique. The installation requires mechanical stability, coordinated movements between several robots and a high-performance control system. Robots from the R-2000 and M-900 series were chosen.

In my 30 years of being self-employed, I have never worked with such a reliable and intelligent supplier as FANUC Nordic. Having the combination of a good relationship and good products is invaluable, says Christer Larsson.

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RCN thinks that demand for pressure tanks will increase significantly in the coming years, not just in Europe, but throughout the world. New product technology will mean that in the future the construction of pressure tanks will be significantly more cost-effective, resulting in a cheaper end product. RCN is looking forward to building on this fine collaboration as well as using FANUC in future developments of the project.