



## ELECTRONICS

### FANUC for V-Zug

**Task** For the Swiss manufacturer of high-quality household devices, V-Zug, the assembly of functional control panels is an important part of its daily work. In order to be able to maintain its high quality standard, V-Zug searches for a safe, innovative and cost-efficient support for control panel assembly.

**Solution** To use a FANUC CR-7iA/L collaborative robot, integrated into an automation system by R. Wick AG. The FANUC robot relieves the workers and takes over tasks like sensitive testing of buttons and control knobs using Touchfinger - and does so with an adjustable, always consistent pressing force, which is not possible with humans.

**Result** V-Zug is very satisfied with the decision to introduce robotics technology: demonstrable efficiency and better process quality are the result of the collaboration with its new robotic colleagues.





## Entry into collaborative technology with FANUC

The leading Swiss household device manufacturer V-ZUG gained its first experiences with the use of collaborative robots. When testing control panels, a FANUC CR-7iA/L supports the assembly worker to test the control panel. Dealing with it is simple and safe, so there is no fear of a dangerous collision. Rather, it saves waiting times and ensures greater process efficiency.

For over 100 years, the Swiss V-ZUG AG has pursued the goal of making the daily lives of its customers easier with high-quality, innovative household devices for kitchens and bathrooms. The most important site for development and production is the headquarters in Zug, and it should also remain this way. In order to be able to continue to conduct research, develop and produce successfully and efficiently, for the last few years the company has been getting fit for the future. By 2033 an entirely new part of town will be built on the company area, which will strengthen the backs of both the company as well as the entire industrial zone of Zug.

It can already be observed that - due to the location-related costs and the self-imposed quality requirements - the production halls are becoming more automated. Patrick Meyer, Head of Plant Planning and Process Analysis, is responsible for the procurement of special plant at V-ZUG:

*"Innovations do not only play an important role in our products, but it is also important in our production to evaluate and use the latest technologies and production processes."*

One of his most recent projects concerns the possibilities to use collaborative (collaborating) robots, which support and relieve humans in a joint work process - without protection systems to divide them. Integrated technical protective measures established in standards minimise the risk of collision and allow the risk of injury for employees to drop significantly.

Patrick Meyer and his colleagues would have been happy to be told by other, comparable companies about their experiences with collaborative robots, *"but unfortunately we were unable to find any others which use it. So we decided to set up our own project. The ideal use appeared to us to be in control panel assembly. The robots should take over the testing of the keypad and control knobs/push-buttons from the workers."*

When researching for suitable suppliers and partners, Patrick Meyer contacted the Swiss branch of FANUC, among others: *"We are familiar with FANUC as a large robot manufacturer, which has been working with collaborative robots for years and offers a special model series."* Besides the requirements for the robot - it should possess process reliability and be easy to maintain - it was important to those making the decision to have a reliable partnership with good, rapid service. For FANUC this goes without saying, as Pierre Rottet, the responsible Head of Sales for FANUC Robotics, stresses:





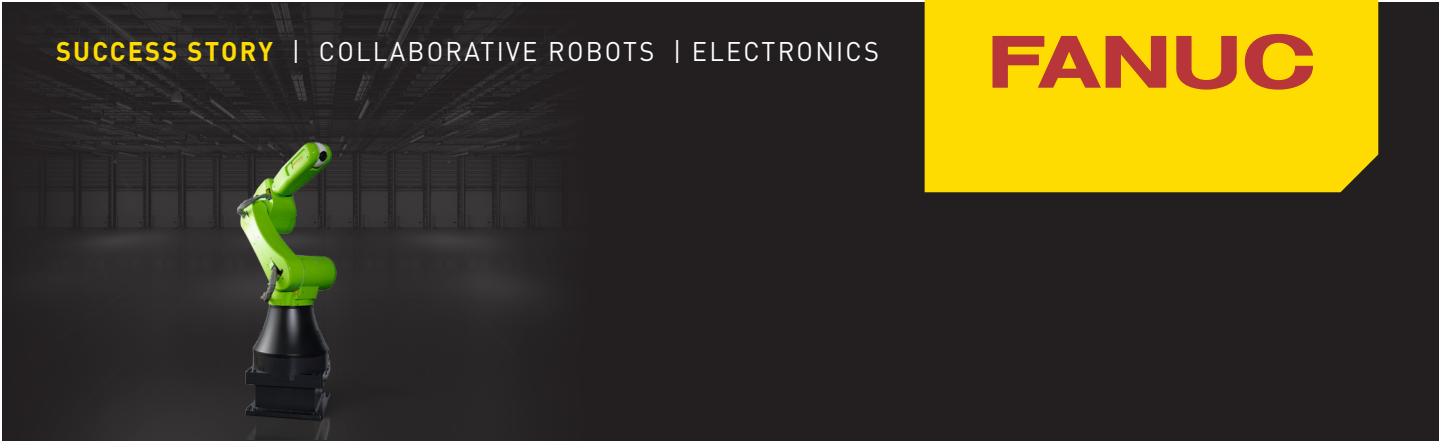
*"We are there for our customers around the clock and guarantee to supply any spare part within a maximum of 48 hours. We are particularly proud of the reliability of our products, which demonstrably lies at 99.9 per cent."*

#### The market leader as a benchmark

With more than four million CNCs and 550,000 robots installed, FANUC is the international market leader in factory automation. With more than 100 models, FANUC offers the largest range of industrial robots worldwide, with which different applications can be handled in all industries. Around four years ago, FANUC brought its first and, with a payload of up to 35 kg, the highest-performance collaborative robot onto the market with the CR-35iA (CR stands for collaborative robot). Today, the CR series comprises five models, all of which are safety certified according to the relevant standards (ISO/TS 15066). In order to be able to work together with them, control them, inform them or simply put them aside without any danger and comfortably, they are equipped inter alia with pinch protection and partly with a soft rubber skin.



A suitable model was found in with the CR-7iA/L, a 6-axle robot with a range of 911 mm and 7 kg payload. For the specific project work at V-Zug, FANUC brought along an experienced industrial partner, R. Wick AG from Küssnacht, just a few kilometres away. For more than 15 years, the systems company has focussed on the development of automation solutions for small and medium-sized enterprises, whereby robotics technology plays a fundamental role. Guido Lüönd, COO of Wick AG, explains: *"Our main objective is to develop automation solutions which significantly increase productivity so that our customers also remain competitive in Switzerland as a place of production."*



Just as it was for V-Zug, working with a collaborative FANUC robot was a welcome first for the Wick team. *“In order to approach the programming for the application, we had to enter into a whole new world, because the work piece, gripper, simply all components have to be considered against the safety standards to be satisfied”, says Guido Löönd. “Our wide-ranging experience in IT, electronics and mechanics was of great use to us, so the solution worked out together with V-Zug withstood all requirements.”*

**Pilot project delivers information**

V-Zug selected a relatively simple process to start in collaborative robotics technology: panel assembly. Our “panel” is the control panel of an electric cooker or similar household device, the front of which contains a touch display, a control knob/push button and an electronic unit behind it.



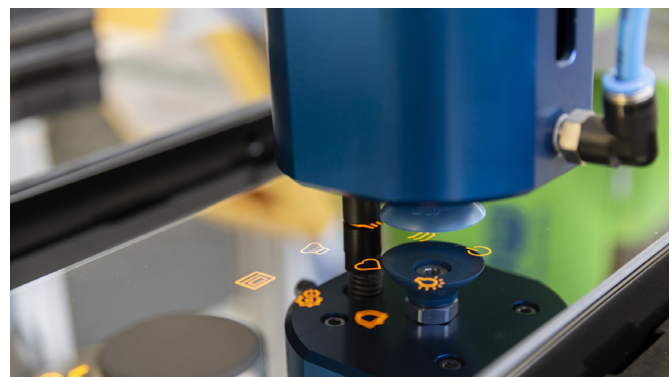
Two workers assemble and test these panels daily, which are used exclusively in luxury devices. They assemble the required components and carry out a visual inspection of the display. To do so, the panel is inserted into one of four compatible test facilities. After a manual IO confirmation, the download of the control software begins, and the worker can dedicate

themselves to the pre-assembly of the next control panel. From here the robot takes over, and begins to test the keys on the touch field and the control knob automatically after the download is concluded.

The assembly site is part of foreman André Furger’s area of responsibility, who, besides process improvement, holds above all the well-being of his workers dear: *“We made the most varied preliminary investigations to guarantee one-hundred per cent safety. By providing early information and support in implementation, we were able to make employees enthusiastic for the project. As a result, they viewed the collaborative FANUC robots as support rather than competition from the start.”*

**Greater efficiency and better quality**

The project was successful, as André Furger confirms: *“We were able to verify efficiency in a conclusive workplace analysis.”* Before, the workers had to wait for the software download, which took about two minutes, before they could press the keys to test them themselves. All waiting times have now fallen away thanks to the collaborative robots. In addition, process quality has improved because the collaborative robot deals with the sensitive testing using a touch finger with an adjustable, always consistent pressing force, which is not possible for a human. The quality of the test results is now greater as a result.





Head of Planning Patrick Meyer is very satisfied with the procedure and result. Since the “panel testing” project certainly had a pilot character to it, the realisation that collaborative robots are actually suitable for direct collaboration with humans was important for him: *“Therefore, for our coming projects we will always consider collaborative robots because entirely new automation solutions are possible with this technology.”*

He is also enthusiastic about his system partners Wick and FANUC: *“We worked together very well and in a solution-oriented way.” In order to actually be able to assess the difference with other providers and products, he commissioned a comparable project. His conclusion: “FANUC is much further ahead of other manufacturers with its collaborative robots. This is the case for the programming, but also for the movement coordination of the robot arm. The FANUC robots run very quietly and controlled from A to B, while our comparative project jerked and rocked significantly more.”*



**From left to right: Patrick Meyer, Head of Plant Planning V-Zug, FANUC Project Leader Pierre Rottet, assembly worker Dimitrijevic Ivanka, foreman André Furger, both from V-Zug, and Guido Lüönd, COO of R. Wick AG**

**Guido Lüönd from systems company Wick also agrees with the leading role which FANUC takes:** *“We have dealt with various robot manufacturers in the past and today we are convinced that FANUC is currently the clear market leader in terms of products and service. With regard to technology, their collaborative robots are in a pioneering role.”*

#### The future belongs to collaboratives

FANUC representative Pierre Rottet is of course very satisfied with such praise. He himself is convinced of the future opportunities of collaborative models: *“At the moment, only three per cent of all newly installed robots are collaborative. Studies show, however, that in ten years’ time the market share will increase to 30 per cent.”* Finally, a collaborative robot has many benefits to offer. Close cooperation with humans takes first place here: As before, there are many fields where humans, with their senses and abilities, cannot be replaced. But for its part, such a robot can take over monotonous, mindless work or provide assistance.

Since it does not require any protective fence or additional safety equipment, it requires a lot less space compared to an industrial robot. This is an important argument when one considers today’s costs for production space.

A collaborative robot can record and evaluate forces and torques. This is not only important for collision monitoring with a human colleague or a fixed object. It opens up new opportunities regarding the tasks to be carried out.