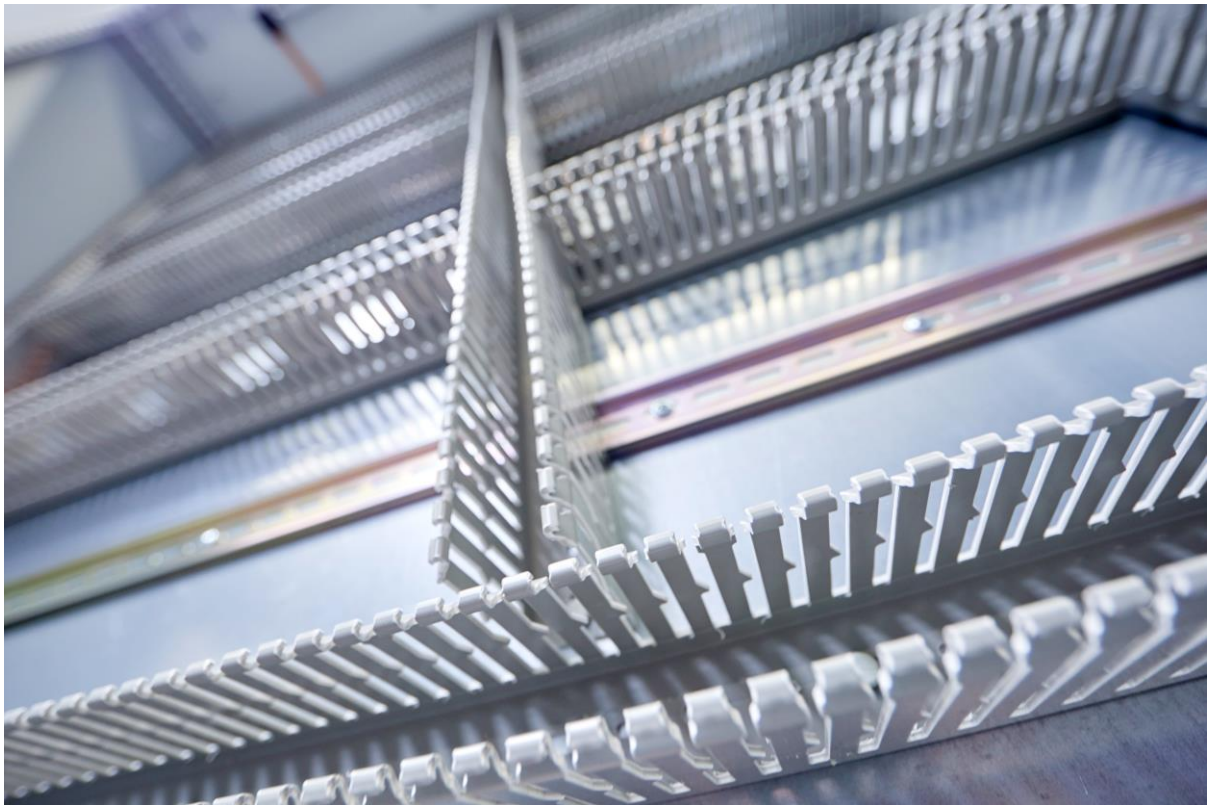


Using Contactron hybrid motor starters in vertical conveyors

Compact, time-saving, and reliable

In order to manufacture high-quality, reliable systems for conveying technology, logistics, and other industries, Europlan Systemtechnik GmbH is always searching for suitable devices. The hybrid motor starters in the Phoenix Contact Contactron product range satisfy the company's complex requirements. Alongside low space requirements in comparison to conventional solutions, they feature a significant reduction in wiring and maintenance effort



Jörn Hoffmann established his own company in 1993, growing it to become an engineering partnership with two other people by 1996. In 1997, the company merged with various small companies in Greifrath am Niederrhein to form Europlan Systemtechnik GmbH, a planning office for electrical engineering design. In order to be able to provide the entire range of electrical equipment for machines and systems, Europlan Systemtechnik moved to Kempen in 2000. Aside from a generously proportioned assembly hall, there was enough space for further expansion. In 2006, Hoffman and his team developed and launched Europick, a concept for controlling paperless order picking. The solution provided users with the option

of procuring a complete, modular system including conveying technology with a Simatic S7 controller, a material flow calculator, and the pick-by-light procedure all from a single source for the first time (figure 1).



Figure 1 Since 2014, the Europlan Systemtechnik team has worked in a commercial hall in Greifrath with an area of 800 square meters

The planning office became so successful that it needed more space again. Accordingly, the Executive Board decided to build its own building in 2013. In 2014, Hoffmann and his employees moved back to Greifrath, into a commercial hall with 800 square meters of floor space and 250 square meters of office space.

When asked about the focus of his business, Hoffmann answered “Europlan Systemtechnik is a specialist for switching devices and PLC software. We create our high-performance systems for wastewater treatment plants and water treatment, for example. We take on the entire development phase, from consulting and planning right through to startup. The team specialises in particular, however, in controllers and software for conveying systems in the field of logistics. This field accounts for around 70 percent of our business.”

Both standard solutions and individual concepts

Teamwork is a priority at Europlan Systemtechnik. The various interests and experiences of the 11 employees complement each other ideally, here. They each set their individual priorities, but do not lose sight of the cooperative work within the company. Naturally, they all provide each other with support in order that the customers benefit from the team's accumulative expertise. This approach ensures that the diverse projects are



Figure 2 Eleven employees currently support users, from consulting and planning right through to application startup

always realised with expertise and reliability – Regardless of whether the respective projects involve adaptations to standard solutions or tailored automation concepts. Thanks to the

team's many years of experience and highly diverse technical and organisational knowledge, users are always provided with the best possible solution. These solutions feature short development times and low costs, coupled with high levels of functionality and stability. Naturally, functional and access security also play a major role (figure 2).

This is the perfect environment for the hybrid motor starters of the Phoenix Contact Contactron product range. These products are used in the realisation of space-saving conveying equipment for the automotive industry and other sectors. The best example is the paperless order picking system mentioned above. Hoffmann became aware of the motor starters while researching on the Internet. He saw a Contactron ad promoting exactly the device features that he was interested in.

A service life of 10 times longer

In the past, sorting systems incorporating, for example, vertical conveyors, were switched and protected with a mechanical contactor combination and a mechanical motor protection relay. This took up a large amount of space in the control cabinet.

The hybrid motor starters have clear advantages, for example because the space saved thanks to their compact design can be used for realising other automation tasks. In

comparison to reversing contactor groups, which are typically 90 mm wide, the Contactron modules are just 22.5 mm wide – a space saving of almost 75 percent. If the application demands an emergency stop function, further 90 mm-wide emergency stop contactors are not necessary. Furthermore, the tool-free Push-in connection technology significantly simplifies the already reduced wiring, and also reduces installation times. These are all good reasons why Europlan Systemtechnik has been relying on Contactron hybrid motor starters for years (figure 3).

The devices also ensure higher system availability, because they work with much less wear than conventional contactors. Comparisons show that the service life of hybrid motor starters is ten times longer. This durability is of particular importance in systems with a high switching

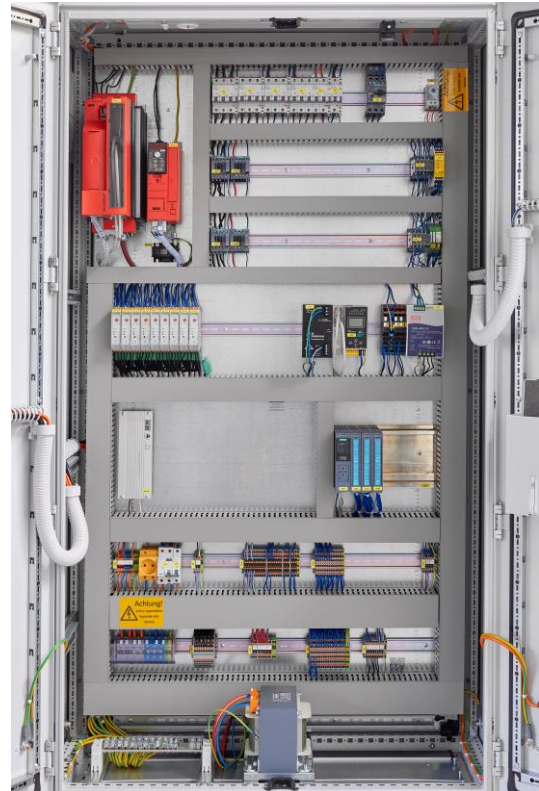


Figure 3 Contactron modules have been the components of choice in control cabinets manufactured in Greifrath for years

cycle frequency. Because Contactron modules can perform up to 30 million electrical switching cycles, they usually do not have to be replaced during the service life of the system. The user therefore benefits from lower maintenance effort and minimum downtimes. This is another advantage in comparison to mechanical components, which quickly reach their limit in such applications and must be replaced frequently, resulting in lower productivity and higher costs (figure 4).



Figure 4 One hybrid motor starter has an overall width of just 22.5 mm

Controllable directly from the PLC

The Contactron hybrid motor starters are a combination of electro-mechanical relays and electronic semiconductor switches that are controlled and monitored via a microcontroller. The semiconductors execute the

motor's wear-prone on and off switching operations, while the relays simply control the flow of electricity. The microcontroller ensures smooth operation, and, thanks to an electronic bimetal function, also ensures motor protection. Thanks to the interplay between the mechanical relay and semiconductors, the hybrid motor starters are highly compact in design.

Wherever three-phase asynchronous motors up to 3 kW must be directly started, reversed, and protected against overloads, Contactron motor starters are the ideal solution. An emergency stop function in accordance with SIL 3 and PL e is integrated into the devices – even though their overall width is just 22.5 mm. Thanks to the low inrush current, the devices can be directly controlled via the PLC. In terms of costs, they are comparable to mechanical components but, as already mentioned, have a service life of 10 times longer and require around 75 percent less space and wiring effort. Approvals such as ATEX, GL, and UL enable hybrid motor starters to be used in many industrial applications. Jörn Hoffmann states in conclusion “Contactron products win thanks to their compactness and reliability. Therefore, we will also be using these devices in future projects. They support us in ensuring that the quality and reliability of our machines are of the highest high level.”

If you are interested in publishing this article, please contact Becky Smith: marketing@phoenixcontact.co.uk or telephone 0845 881 2222.

Contactron hybrid motor starters – Four functions in one device

The Contactron hybrid motor starters combine four functions in one device: motor starter, reversing function, motor protection against overload, and emergency stop up to SIL 3 and PL – in a housing that is just 22.5 mm wide. Their performance spectrum is supplemented with other features such as diagnostics based on LED indicators, a floating feedback-changeover contact for overcurrent, grid asymmetry, phase failure, motor blockages, fuse failure, and internal safety function diagnostics. The Contactron range also features add-on modules for bus connection via gateways to enable networking. This means that the hybrid motor starters can be integrated into conventional bus systems. Short-circuit-proof versions for DIN rail mounting and 60 mm power busbars are also available.