CAN Newsletter Online

CAN NEWSLETTER MAGAZINE

CAN cables in pharmacy picking systems

With the sliding cabinet system, pharmacies can store their medications in a space-saving manner. The system stores up to 60 000 packaging units in a little space and picks them automatically according to order.

(Source: Adobe Stock)

The complete article is published in the September issue of the CAN Newsletter magazine 2021. This is just an excerpt.

A patient who visits a doctor with an acute complaint usually receives a prescription that they must take to the nearest pharmacy. The logistic performance of the pharmacies that our patient must use (and there are almost 20 000 of them in Germany) often receives insufficient appreciation. A regular pharmacy has about 20 000 medications on hand (large ones have up to 60 000) and receives up to five deliveries each day. Throughput is high, storage is extremely complex, and space is usually limited. That is why picking systems have established themselves: they allow the pharmacy staff to request a medication at the touch of a button and give it to the customer after a very brief waiting period with additional information such as an explanation of the medication.

Sliding cabinet system

The systems designed by Gollmann Kommissioniersysteme in Halle (Saale), Germany are assuming a prominent place in this market because they are especially compact. Other systems work with fixed channels in which the handling system moves, but Gollmann has developed movable cabinets that open up channels wherever goods are being picked or delivered (Figure 1).

This principle doesn't just save space. It also allows customized adaptation to spatial restrictions in all dimensions. There must be flexibility and reliability despite the pronounced manufacturing complexity. Gollmann meets this requirement with two factors. The company has great in-house vertical integration and engages high-quality industrial partners as suppliers. After all, the picking systems must not fail, and a single system completes about 15 million movements over the course of 15 years of operation in a pharmacy.

This principle has worked very well for Gollmann. Daniel Gollmann founded the company in 2006. In 2007, the first full business year, the company installed 12 systems. Currently, 250 systems leave the company’s large assembly halls each year – that's one every single business day. Sven Ronneberger, the company's technical manager, said: "At the beginning we made fixed versions of our system. Now we are flexible in all dimensions and offer systems that can store 60 000 articles or more. No two systems are alike." Gollmann has been working with Igus for more than ten years in the selection and optimization of moving cables and energy chains.

Mobile energy supply for individual cabinets and grippers

Each cabinet is driven by a stepper motor that must receive energy and, critically, signals. For instance, each end position is queried with a proximity switch. This means that there are many moving cables (Figure 2) and a corresponding variety of energy chains, since

the storage and retrieval unit arm (Figure 3) and the gripper at the end of the arm (Figure 4) require energy.

Figure 1: Gollmann commissioning systems are remarkable for their design that can be adapted to each individual case (Source: Gollmann Kommissioniersysteme)

CAN cables

Early on (in 2007), Gollmann decided to include Igus E065 energy chains and has stuck with them ever since. A short time later, the decision was made to buy the cables from Igus, too. Since Gollmann picking systems use CAN cables to communicate, the focus was on the network cables from the Chainflex product range. CAN is mainly used in automation technology. In addition, CAN systems are also found in industrially used vehicles such as forklifts or lifting work platforms. CAN cables are available for different fields of application. In general, CAN cables are often installed fixed in machinery and equipment, so that cables with a solid conductor or a flexible conductor consisting of seven strands can be selected.

For applications in the energy chain, it is necessary to use CAN cables with fine stranded wires. In addition, a cable structure tailored to the movement in the energy chain is necessary, so that secure data transmission is guaranteed over the years. This is why Chainflex cables have become established especially in equipment and machines such as robots, packaging machines, production machines, and machine tools.

Figure 2: Each sliding cabinet receives its energy supply and signal routing from an E065 energy chain and Chainflex cables (Source: Igus)

The Chainflex cable product range offers a variety of CAN cables. In total there are 13 different CAN cable types from seven different cable ranges available for different applications. All CAN cables have been developed for continuous movement in the energy chain. Depending on the requirements, users can choose between different PVC, PUR, and TPE outer jackets. The different cable series offer different performance levels, so that the right cable can be chosen for each application area in order to achieve the maximum service life. All CAN cables have one thing in common: They are subject to the same quality standards. Here it does not matter whether it is a cost-effective cable of the CF888 range, or a cable for the highest demands and smallest bend radii as is the case with the CFBUS.LB range. Therefore, Igus also gives a 36-month functional guarantee on all Chainflex CAN cables with a service life of up to 10 million double strokes.

The topic of the maximum transmission length of cables is often underestimated. In general, caution should be exercised, as the maximum cable length can vary greatly depending on the type of cable. A cable for fixed installation always has a lower dampening than flexible cables, which is designed for permanent movements. As a result, the transmission length is lower than with a cable for fixed installation.

Figure 3: Energy and CAN signals reach the RBG axes through energy chains (Source: Gollmann Kommissioniersysteme)

Depending on the cable range, Chainflex CAN cables are mechanically designed for travel distances of up to 400 m or more, but the data-rate of the network system decreases with increasing cable lengths. For fixed installation, copper cables can reach up to 500 m. Then the maximum transmission speed is still 125 kbit/s, while with a cable length of 40madatatransferrateof1Mbit/s is still possible. For flexible CAN cables for the energy chain, experience shows that one cable length can be significantly shorter. Depending on the transmission speed, up to 50 m is possible for a moving CAN cable. However, this length may vary up and down depending on the environmental conditions and application requirements.

If you would like to read the full article from Igus, you can download it free of charge or you download the entire magazine.

cw