

Door drive with extremely high energy efficiency UK

At last year's interlift in October, the innovative firm Meiller Aufzüge GmbH from Munich presented its forward-looking MiDrive door drive.

The new door drive concept was also shown at numerous fairs and exhibitions to many interested and often astounded planners, architects, lift builders and representatives of firms associated with the industry. The unanimous opinion was that with MiDrive, the company from Munich has made the correct move and taken an important step towards the digital future.

ECO and ECO Plus standard

More than ever before, people today are talking about saving energy wherever possible. It is therefore also of great importance to optimise the energy consumed by door drives. With MiDrive, the manufacturer has redefined several standards, especially with regard to intelligent energy use.

Both energy saving modes - ECO and ECO-Plus - are integrated as standard and at no extra cost. Eco means that the door's motor is shut down whenever the door is in an idle state, while in

ECO-Plus mode, the controller is additionally deactivated. Thanks to improvements in the recognition algorithms, the motor immediately starts up again as soon as it is needed. No additional switches are required.

Saving energy even in operation

Compared to conventional door drives, which are only capable of saving energy in the idle phase, Meiller's new drive concept also comes into play in the operational phase. While familiar systems are only able to convert excess braking energy into heat, the level of efficiency of MiDrive has been measurably improved and heat losses reduced, thanks to the modern process architecture, sophisticated energy management system and optimised door running properties.

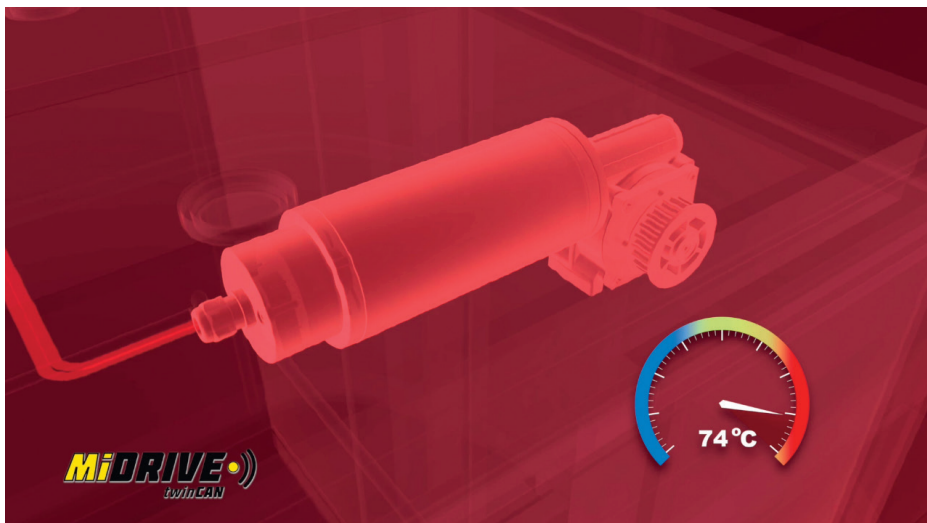
Normally, when a brake is applied to an electric drive, the surplus energy is transformed into heat by a braking chopper (resistor). However, in the event that the brake is frequently applied, the chopper will at some point be operating at its thermal load limit,

with the result that the drive must rest until the brake chopper is able to absorb energy again. By employing an energy storage device to take away the excess energy, the drive can be operated constantly, without the need to transform electrical energy to thermal energy. The energy then oscillates between the energy store and the controller unit. This removes the need for an enforced operational break, with the additional benefit of lower energy consumption.

Temperature-dependent consumption adjustment

Thanks to the system's ability to intelligently control energy, it is also possible to adjust the energy consumption of the door motor in relation to the external temperature, to keep the motor operational particularly when temperatures are extremely low. Similarly, measures are automatically applied to keep the motor operational in extremely high temperatures.

At low temperatures, lubricants and motor bearings become stiff and sluggish. This not only results in reduced



High temperature range (from +60°)

efficiency, it can also increase wear and tear, particularly when condensation water freezes into ice at low temperatures, impairing the functionality of the bearings.

To counter this effect, MiDrive is able to dynamically adapt the holding current in the end positions to suit the temperature situation. Since defined currents are used during the door movement (due to normative constraints), only the end position of the drive is relevant. This is where the system remains when not in use, and where it consumes the least current.

You could call it 'energy saving for the future'.

This means that in its basic setting, the drive requires 2.500mA to maintain the end position. If the temperature in the motor drops too far, the holding current is raised from 2.500mA to 4.500mA. If the temperature continues to drop despite this measure, the holding current is raised again from 4.500mA to 16.000mA. Once the motor temperature rises again, the temperature levels are lowered accordingly.

At high temperatures it is important to limit the current consumption of the motor as much as possible.

To reduce the current consumption of a motor that is already hot, Meiller MiDrive reduces the travel profile for the door movement. As described in relation to the low-temperature range, the drive consumes the least energy when it is in the end position. To make maximum possible use of this, a delay is also introduced into the door's opening and closing movements. These two-second breaks lengthen the door motion cycle and lower the temperature of the motor accordingly.

As soon as the motor is operating in the normal temperature range again, current consumption measures are withdrawn accordingly.

All the features of the MiDrive concept from Meiller Aufzugtüren described above create a fully new dimension of intelligent energy control.

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