EMERSON™
Industrial Automation

applied
To elevators

Drives keep up the pressure in Swiss-made elevators

A Control Techniques AC drive is at the heart of each of the world's most advanced hydraulic elevator systems, designed and manufactured by Bucher Hydraulics of Neuheim in Switzerland.

The MRL-System BERIPAC™ offers a unique combination of high quality ride, high efficiency, low electrical energy costs with a usage of up to 180 rides per hour without the need for an oil-cooler – a performance unmatched in the elevator market.

How has this been achieved? Bucher Hydraulics' Product Manager, Mr Grab explains. "Bucher has been famous for innovations over the years. Many people will know us for our electronically controlled LRV valve that is insensitive to changes in pressure and temperature and that introduced significant energy savings, shorter travel times and virtual elimination of creep-to-floor. We then improved control with the introduction of variable-speed AC drives. Now, with BERIPAC™, we have introduced a hydraulic counterweight with four-quadrant pump, direct-to-floor operation and completely eliminated the need for an oil cooler too. And the drive we have chosen for pump motor control is the one which we consider has the best combination of accuracy and reliability – plus outstanding international support – and that's the Unidrive SP from Control Techniques."

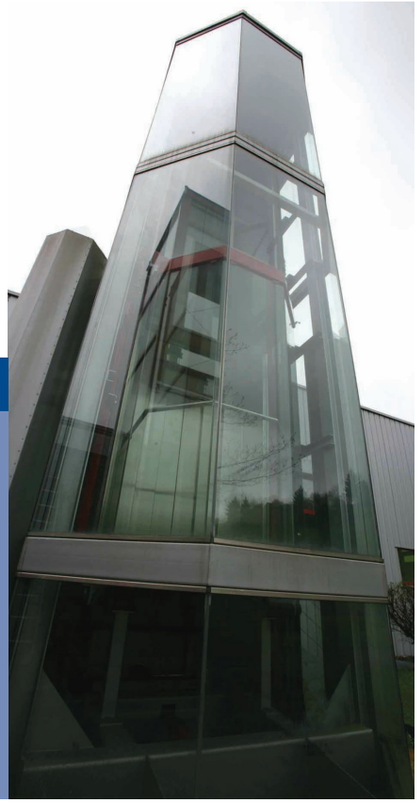
The BERIPAC™ package is equally easy to install in a new elevator installation or as a retrofit, with no mechanical counterweights and straightforward electrical and hydraulic connections. It uses a motor size of the same rating, or less, than an equivalent traction elevator and gives a saving of greater than 80% compared with standard hydraulics.

The powerful Bucher controller receives multiple feedback signals such as temperature, oil pressure and car position from an absolute encoder – and, on receiving a request, calculates the required riding curve. Typically, the speed curve will require a reverse speed to provide holding pressure as the brake is released and a fast change of direction at start-up.

As the lift car comes down the shaft, its potential energy is released in the form of oil pressure that is stored in a hydraulic accumulator. On rising in the shaft, this energy is released in a controlled way via the pump to the pulling cylinder to minimise the additional electrical energy that is required. This closed hydraulic system runs at a maximum of 40°C, requires no oil cooler, gives a positional accuracy of ±1mm and is suitable for shafts of up to 15 metres.

The compact, two-part control cabinet can be sited almost anywhere – in an existing machine room for instance – and encompasses the elevator controller and Unidrive SP as well as the hydraulic cabinet with emergency controls and 45 litre fluid tank.

"This system sets new standards in ecology and economy," says Mr Grab. "The closed loop control and continuous approach to floor produces a ride comfort that is as good as the best on the market and this is in part due to the dynamic response and consistent, accurate following of the calculated speed curve. We chose Control Techniques after considerable research and cannot fault the support we receive from their Zurich Drives Centre."



KEY BENEFITS

- DIRECT TO FLOOR OPERATION
- POSITIONAL ACCURACY OF ±1MM
- HIGH QUALITY RIDE
- 80% LOWER ELECTRICAL ENERGY COSTS
- 180 RIDES PER HOUR

For the full press release please visit www.controltechniques.com

CONTROL TECHNIQUES

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