

Safety guaranteed

ROBA®-topstop®: Reliable brake systems for vertical axes

CLOOS, based in Haiger (Hesse) is one of the leading companies in welding technology. In its large, automated robot welding systems, CLOOS uses ROBA®-topstop® safety brakes by mayr® power transmission to safeguard its gravity-loaded axes. These brakes are designed for application in all installation positions and provide reliable protection for people and materials.

Whether construction machines, rail vehicles or in the energy, automotive or agricultural sectors – Carl Cloos Schweisstechnik GmbH realises production solutions for numerous branches. The company's strength lies in particular in its wide-ranging competencies, as at Cloos it is possible to obtain welding technology, robot mechanics and controls as well as positioning, software and sensors all from a single source. This year, the company is to celebrate its 100-year anniversary. "mayr brakes are used in our large, automated robot welding systems, meaning everywhere where thick steel plates are welded together – for example for construction machines, railways or tractors", explains Dipl.-Ing. Dirk Haubrich, Head of Mechanical Design at CLOOS. "Amongst other things, these brakes are installed in our gravity-loaded stroke axes. From a certain size or a certain weight, a redundant system simply is required. The ROBA®-topstop® brakes act as a second brake in the safety system and ensure that the 2 to 2.5-tonne loads do not drop. They allow us to guarantee the safety of people and machines."

Reliably sealed

In addition to the stroke axes, which come in both toothed rack and ball screw drive designs, the ROBA®-topstop® brakes can also be used for eccentrically-loaded axes of rotation. The brakes are generally integrated into the motor adapter of STÖBER gear units. STÖBER Antriebstechnik GmbH & Co. KG in Pforzheim is a long-standing cooperation partner of mayr®.

mayr® supplies STÖBER with the ROBA®-topstop® brakes in modified form so that the brake with plug-in coupling replaces the motor adapter otherwise used. STÖBER has designated this modified product ServoStop. Gear units with integrated ServoStop brakes can be combined with

almost all gear units. “As we use the motor gear units in all installation positions, we place particularly high requirements on the tightness of the motor adapter”, emphasises Dirk Haubrich. “We have applications on which more than 20 litres of gear oil press down on the motor adapter seal from above. No oil may leak from the gear unit into the brake, as the consequences would be disastrous.” For this reason, mayr® power transmission supplies specially-adapted and designed safety brakes to STÖBER Antriebstechnik GmbH & Co. KG.

Maximum safety

The valid standards specify a dual brake system design for gravity-loaded axes. “As experts for positioning axes of up to 60 tonnes, we test both systems for function independently of each other in the control system especially developed by CLOOS”, explains Stephan Pittner, Head of Automation at CLOOS.

Final inspection: 100% quality controls

As ROBA®-topstop® brake systems guarantee the safety of people and materials in gravity-loaded axes, they have to work particularly reliably. mayr® power transmission has therefore voluntarily subjected the ROBA®-topstop® safety brakes to a type examination by the Deutsche Gesetzliche Unfallversicherung (German Statutory Accident Insurance; DGUV). This examination confirms that the brake equipment is a “tried and tested component” in terms of Category 1 in accordance with DIN EN ISO 13849-1. Over and above this, the company executes a comprehensive final inspection in addition to numerous quality assurance measures. Every single safety brake which leaves the plant must have passed a 100% inspection after full assembly and adjustment. mayr® power transmission has developed a final inspection test stand especially for ROBA®-topstop® safety brakes. On this stand, function-relevant parameters such as pull-in and drop-out voltage, coil resistance, the dielectric strength of the coil and the proper function of the switching condition monitoring system are determined. “In addition, the brake is tested at high voltages for shorted coils. We also measure the braking torque in clockwise and counter-clockwise direction”, explains Rudolf Rädcl, Design Engineer at mayr® power transmission in Mauerstetten, regarding the testing possibilities. “The nominal values for this come from the system, meaning that the system knows what the brake should be able to withstand. We have here consistent, standardised measurement conditions. On safety-critical applications, it is important that the braking torque is correct. We would be able to recognise any deviations immediately during the braking torque measurements and are able to make reliable statements. These brakes fulfil their guaranteed characteristics.”

Safety does not allow for compromises

All the measurement values determined are archived together with the associated serial number of the brake in an electronic database. This guarantees 100 percent traceability. The company focuses on clear processes, comprehensive testing possibilities, years of experience and highly-qualified employees so that the brakes by mayr® power transmission permanently provide the required standard of safety. Rudolf Rädcl adds: "As reliable partners, we have to offer products people can trust in. Safety does not allow for compromises."

Fig. 1:

File: P-9-09-Bild3.jpg

ROBA®-topstop® brake systems by mayr® power transmission reliably guarantee the safety of people and materials in gravity-loaded axes.

Fig.: mayr® power transmission



Figs. 2 and 3:

File: F-6-104-Bild1.jpg

File: F-6-104-Bild2.jpg

Whether construction machines, rail vehicles or in the energy, automotive or agricultural sectors – Carl Cloos Schweißtechnik GmbH realises production solutions for numerous branches.



mayr® brakes are used in the large, automated robot welding systems at Carl Cloos Schweißtechnik GmbH. The ROBA®-topstop® brakes act as the second brakes in the safety system.

Figs.: Carl Cloos Schweißtechnik GmbH

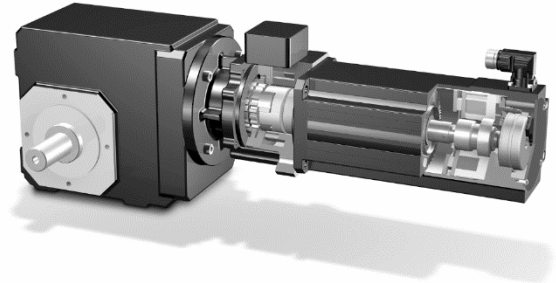


Fig. 4:

File: F-6-104-Bild3.jpg

The brakes are integrated into the motor adapter of STÖBER gear units.

Fig.: STÖBER Antriebstechnik GmbH & Co. KG



CLOOS Welding technology:

Robot and welding technology from a single source

Since 1919, Carl Cloos Schweisstechnik GmbH is one of the leading companies in welding technology. About 750 employees all over the world realise production solutions in welding and robot technology for industries such as construction machinery, railway vehicles, automotive and agricultural industry. The CLOOS welding power sources of the QINEO series are available for a multitude of welding processes. With the QIROX robots, positioners and special purpose machines CLOOS develops and manufactures automated welding systems meeting the specific requirements of the customers. The special strength of CLOOS is the widely spread competence. Because – from the welding technology, robot mechanics and controller to positioners, software and sensors – CLOOS supplies everything from a single source.

Press contact:

Carl Cloos Schweisstechnik GmbH
Carl-Cloos-Strasse 1
35708 Haiger
GERMANY

Stefanie Nüchtern-Baumhoff
Tel. +49 (0)2773 85-478
E-mail: stefanie.nuechtern@cloos.de