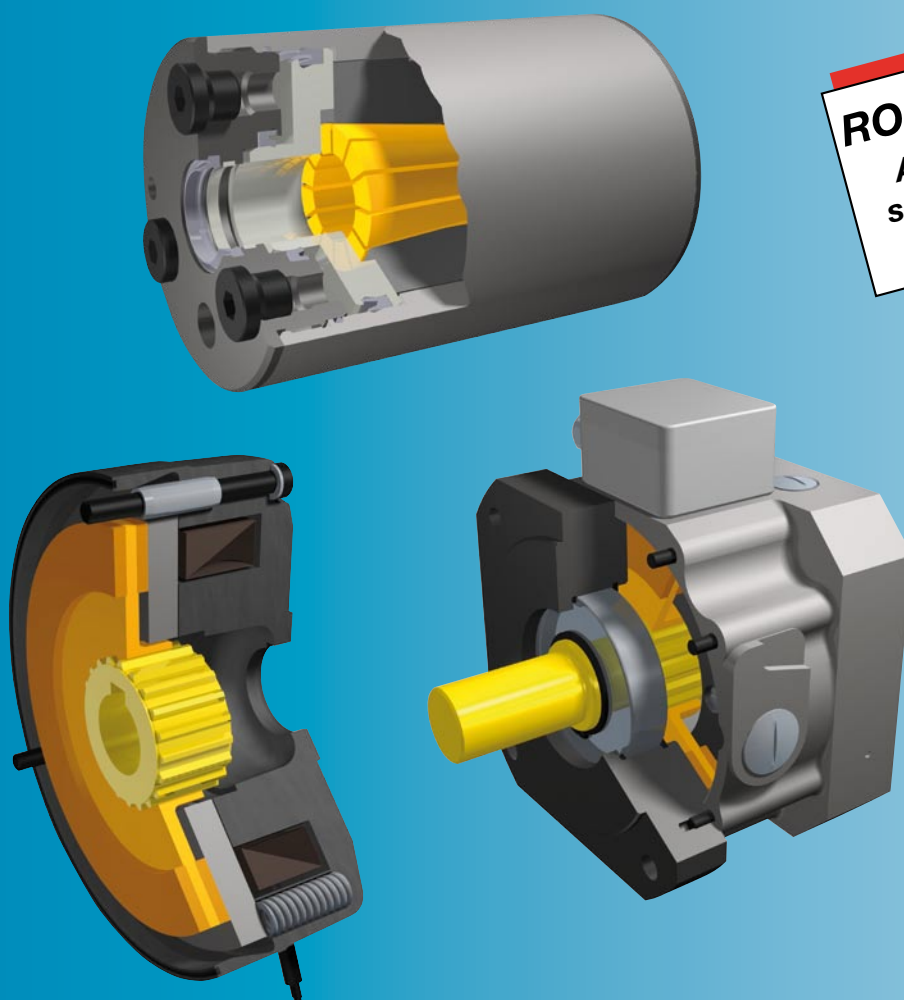


Brake systems

for vertical axes



ROBA-stop®
Always the
safest choice
for brakes

www.mayr.com

IMG.802.V08.GB



mayr®
your reliable partner

Safe brake systems for gravity loaded axes

Prevent inadvertent falling or crashing of vertical axes!

- ❑ **Reliable protection of people in all modes of operation**
- ❑ **A maximum level of safety due to redundant components and maximum diversity is achieved when using two different brake systems**
- ❑ **Controlled operational safety due to integrated functional monitoring**
- ❑ **Minimum braking distances due to short reaction times and high performance density of the brakes**
- ❑ **Different brake concepts to suit individual axes designs optimally**
- ❑ **Problem-free and economic retrofitting of existing axes**

Are your axes really safe?

Additional measures are required to minimise the potential risk of a falling load in vertical axes, especially where personnel might be endangered. This measure is required by the Technical Committee for Mechanical Engineering, Production Systems, Steel Construction in their information sheet "Gravity loaded axes". A permanent magnet brake mounted in the servo motor does not offer sufficient security.

The motor brake frequently cannot cope with:

Loss of energy due to an error in the machine control, or a power failure, can lead to a crash for vertical axes. Mechanical wear, due to EMERGENCY STOP braking actions for example, also contamination of the friction linings through oil, drastically reduces the braking torque. Existing brakes, often integrated into the motor are equipped with insufficient reserves of braking torque and any failure of the brake cannot be excluded. With linear motors any braking in EMERGENCY STOP situations or in the event of a power failure is not possible, as no brake is integrated.

Perfect solutions with new brake systems

Dependent on the risk analysis with the risk parameters "Severity of the injury", "Frequency and/or duration of the exposure to danger" and "Possibility of preventing the risk or of limiting the danger", there are various requirements for the selection of safety components to protect the employees during dangerous machine movements.



DIN ISO 13849 "Machine safety" provides appropriate solutions via descriptions of system structures (category) and the additional requirements on reliability parameters (DC, CCF ...). The safety-related quality of the SPR/CS (safety-related control parts) is given as the Performance Level (PL). mayr® power transmission has developed several new brake systems which improve the safety-related quality as part of the SPR/CS.

The safety brake product ranges

ROBA®-topstop®,

ROBA®-alphastop®,

ROBA®-pinionstop,

ROBA®-linearstop as well as

ROBA-stop®-M brakes fulfil the requirements for a safe holding or braking system and minimise the hazards for both personnel and machines. These brakes are used both as safe single brakes, and in combination with a second brake as a two-channel or redundant system for safeguarding against more severe hazards. A maximum level of safety due to redundant components and maximum diversity is achieved when using two different brake systems.



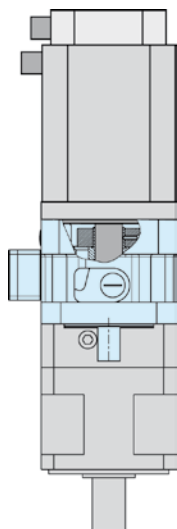
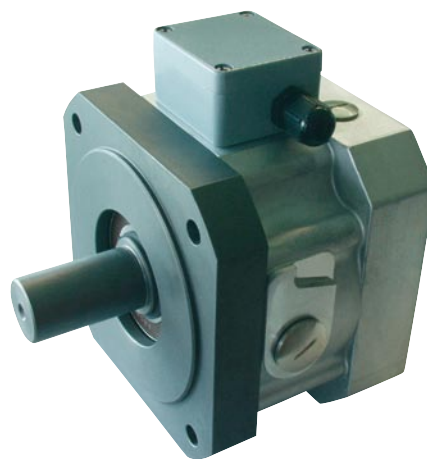
On request ROBA-stop® brakes can also be delivered with UL approval.

ROBA®-topstop®

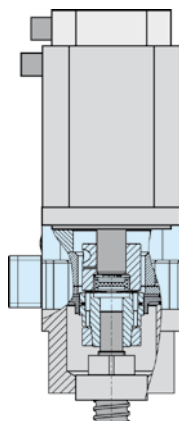
Modular safety brake system for A-bearing-side servo motor mounting

Features and Advantages

- Market-leading system for vertical axes with rotor drives
- Safe holding of the axis in any position, even with a disassembled servo motor, e.g. during machine maintenance
- Safe braking, also in the event of an EMERGENCY STOP or a power failure
- Long service lifetime, even with frequent EMERGENCY STOP braking actions
- Highest level of reliability due to decades of experience and million-fold tried and tested *mayr*® construction
- Indication of the operating condition (released/braked) via an integrated switch
- Short, compact design
- Low dead weight
- Low self-heating, even at 100 % duty cycle



ROBA®-topstop®
with output shaft for
direct mounting onto
hollow shaft gear box.



Brake system with
integrated, plug-in shaft
coupling.
Separate coupling
and coupling housing
are not necessary.

Brake – Designs:

- Single circuit brake with bearing supported output shaft, i.e. also suitable for toothed belt drives.
- Single circuit brake with integrated, plug-in shaft coupling.
- Single circuit brake with shaft coupling and installed EAS®-smartic® safety clutch.
- Redundant dual circuit brake with bearing supported output shaft.
- Basic brake modules for special brake configurations.

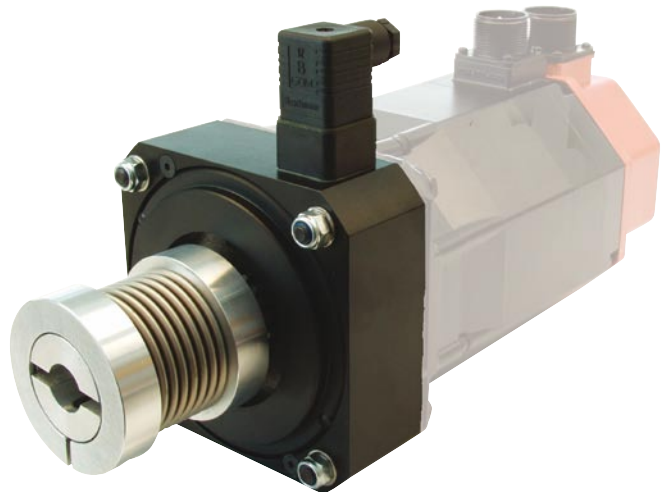
Due to their adjusted flange dimensions, ROBA®-topstop® safety brakes can be integrated into existing designs between servo motor and counterflange without any problems. If necessary, any mounting situation can easily be realised by exchanging the standard flanges.

Five standard sizes for braking torques from 12 to 400 Nm are readily available with only a short delivery time.

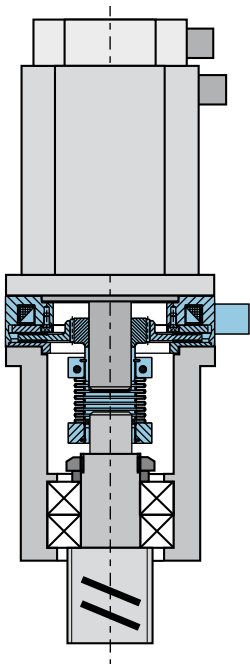
ROBA®-alphastop® The cost effective safety brake for directly driven axes

Features and Advantages

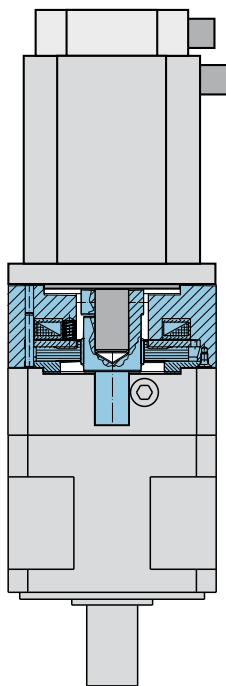
- Easy installation between servo motor and mounting flange
- Totally enclosed brake housing
- Complete with backlash-free shaft coupling
- Design with output shaft for direct mounting onto a hollow shaft gear box
- Low mass moment of inertia
- Designed for 100 % duty cycle



ROBA® -alphastop® combined with the smartflex® backlash-free shaft coupling



ROBA® -alphastop® with shaft output for direct mounting onto a hollow shaft gear box



Concept

The ROBA®-alphastop® is a safety brake for mounting between a servo motor and a bell housing. The gear hub of the brake is combined with a smartflex® backlash-free steel bellows coupling. Frictionally locking clamping rings ensure backlash-free torque transmission between motor and bell screw spindle.

The ROBA®-alphastop® is designed with an output shaft for direct mounting onto a hollow shaft gearbox; a shaft coupling is not required.

Designs

The brake can easily be adapted into existing designs. Different coupling sizes and an adaptor kit ensure that the existing distance between shafts will be maintained.

Installation into existing designs between servo motor and bell housing is easily possible without modifications. However, by modifying the bell housing, the length of the drive and, therefore on vertical axes the machine height may be optimised.

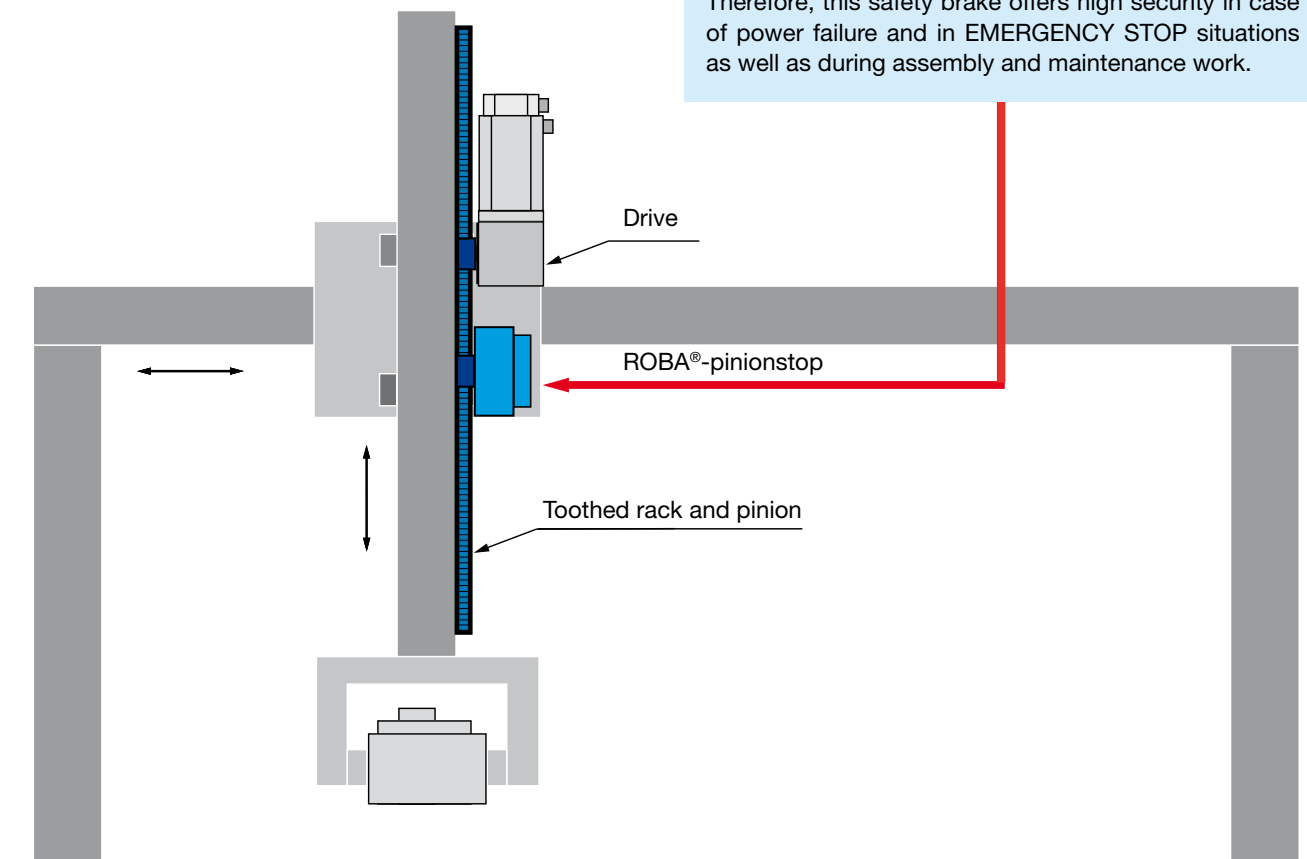
ROBA®-pinionstop The safe rack-and-pinion brake

Features and Advantages

- Safe holding of the axis via a brake module ready to be installed with a pinion shaft
- Independent, electromagnetically released spring applied brake system
- Integrated release monitoring
- Sealed brake housing
- Individual design and configuration possibilities of the brake
- Simple mounting
- Simple realisation of a redundant brake system by mounting a second ROBA®-pinionstop brake or by using an additional brake on the servo motor



As an independent brake system, the ROBA®-pinionstop engages at any position directly into the toothed rack and pinion and is closed in a de-energised condition. Therefore, this safety brake offers high security in case of power failure and in EMERGENCY STOP situations as well as during assembly and maintenance work.



For detailed technical data and dimensions, please contact the manufacturers.

ROBA®-linearstop The hydraulic and pneumatic brake system for linear axes

Features and Advantages

- Safety brake system according to the fail-safe principle
- Backlash-free force transmission
- No self-locking when clamping
- No movement required to clear the clamping system
- Excellent power density
- Suitable for EMERGENCY STOP braking actions
- Extremely short response time
- Integrated switching condition monitoring
- Long service lifetime
- Easy integration into existing constructions

Additionally on pneumatic design Type 381.1__0

- reliable dynamic braking
- TÜV (German Technical Inspectorate) -tested acc. Trade Association inspection policies



As a new braking system, the ROBA®-linearstop offers unique possibilities for increasing the machine safety. As a compact brake unit it can be quickly and easily installed, even into existing machines and equipment constructions.

The unit having an effect on a rod brakes independently from the existing drive system.

In linear motor axes, the ROBA®-linearstop prevents e.g. not only an unintended fall of the vertical slide in the event of a power failure or another malfunction but can also safely brake dynamic horizontal movements in EMERGENCY STOP situations.



ROBA-stop®-M

The economic safety brake also for vertical axes

Features and Advantages

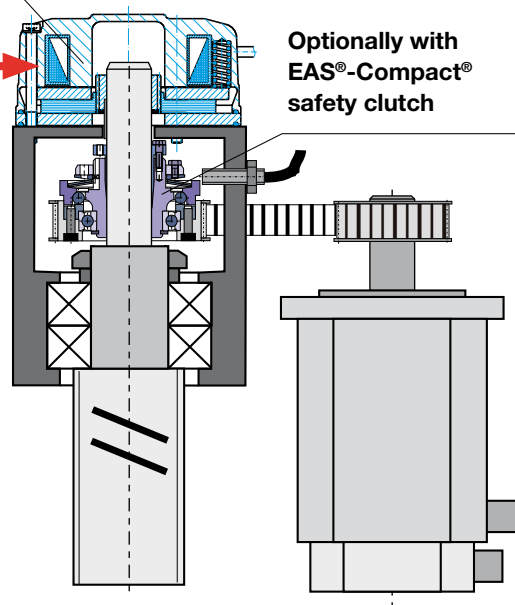
- Simple installation
- Totally enclosed brake housing to Protection IP 54 or IP 65
- Operational safety due to constructively predefined and tested nominal air gap
- Maintenance-free for the entire lifetime of the friction linings
- Insulation material class F
- Designed for 100 % duty cycle
- Short switching times

Designs

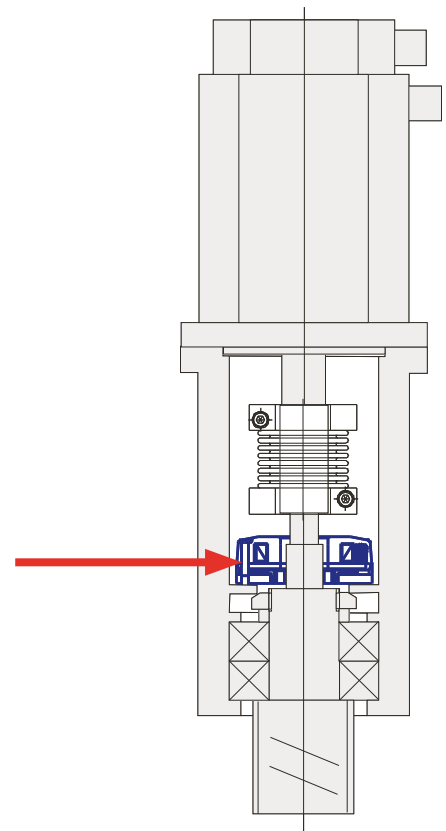
ROBA-stop®-M brakes are spring applied, electromagnetic safety brakes. The brake ensures safe and reliable braking of the axis in any position when the current has been switched off, or in the event of a power failure or an EMERGENCY STOP. The ROBA-stop®-M can for example be fitted to the spindle shaft as an additional redundant brake to the existing brake in the servo motor.

With the ROBA-stop®-duo, two single ROBA-stop®-M brakes are combined to form an independent, redundant brake system.

ROBA-stop®-M



In the shown individual cases, the brake has a direct effect spindle shaft and reliably prevents onto the uncontrolled falling or crashing of the axis even in the event of a power failure, faulty operation or failure of the servo brake in the drive motor.



For detailed technical data and dimensions, please see catalogue:

[ROBA-stop®-M](#)

[K.891.V1_GB](#)

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