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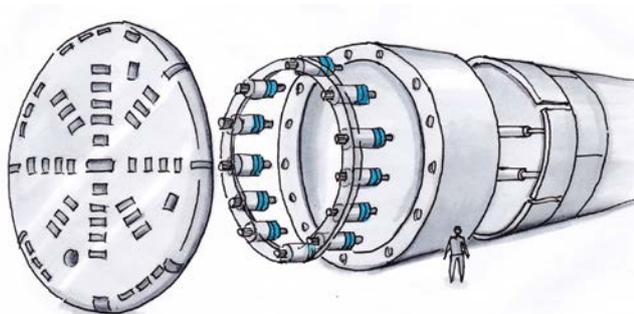
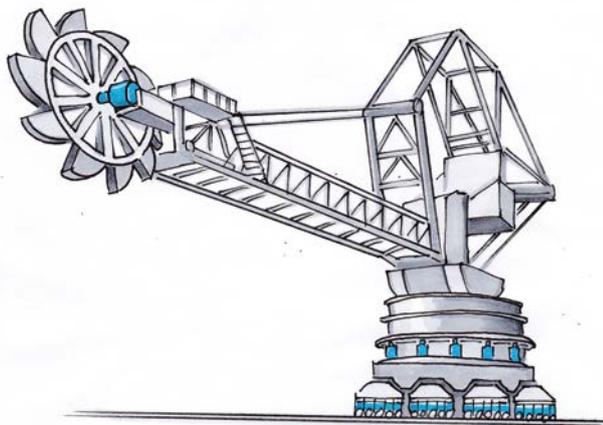
Tunnelling machines Underground mining machines

Torque limiters
Shaft couplings
Safety brakes



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Protection and safety for the tough guys

For more than 100 years, the company *mayr*[®] power transmission has stood for innovations and premium quality. The family-run company from the Allgäu region can rely on decades of experience in development, manufacture and application, and still has a major influence on power transmission today with its path-breaking products.

In the field of heavy load applications, such as in tunnelling or mining machines, *mayr*[®] power transmission stands for future-orientated solutions with high performance density as well as high torques and speeds.

Wherever machines eat their way through rock, burst open stone and hold and decelerate high loads, only robust, resistant and sturdily-dimensioned clutches and brakes can cope with the extreme conditions. In the drive line, they guarantee a secure connection between the shafts, ensure permanently reliable overload protection and can, in case of emergency, absorb peak loads with extremely high friction work: The clutches and brakes by *mayr*[®] power transmission ensure maximum operational safety and productivity in the large systems.

EAS[®]-HT torque limiters

The destruction-free overload protection for high torques

Faster, higher, stronger – the requirements on heavy machinery and all their components are increasing. Therefore, *mayr*[®] power transmission offers with the disengaging EAS[®]-HT element clutches ideal solutions at very high torques and speeds or high mass moments of inertia.

These clutches are based on individual overload elements which are integrated into the flanges. The achievable torque results from the pre-tension force of the elements multiplied by the number of elements and the radius at

which the individual elements are arranged. Due to the modular concept, not only clutches tailored to the respective application case can be built, but also far higher torques can be achieved than with a central disengagement mechanism.

Up to now, *mayr*[®] power transmission has supplied torque limiters with a torque of 540,000 Nm. But this has by no means reached the limits of what can be done: Due to the modular construction, torque limiters with torques of several million Newton metres are possible.





Customer-tailored overload protection

The high-performance EAS®-HT element clutches are essential components in order to achieve high productivity and to prevent downtimes due to overload damages.

- Positive locking torque transmission
- Adjustable torque
- Separates through disengagement
- Accurate and non-destructive
- Easy repeat operation start-up
- Robust and with long service lifetime
- High performance density
- Modular concept with numerous branch-optimised standard construction designs
- Torques from 70 – 440,000 Nm (Standard range)
- Customer-specific special designs

Product Catalogue

The detailed Product Catalogue **K.4050.V_ _ _** with all constructional designs, technical data and dimensions is available for download on our website www.mayr.com.

We are also happy to send you a printed catalogue.



EAS®-elements for installation in two bearing-supported flanges facing each other or for integration into existing constructions



mayr® power transmission has comprehensive knowledge in the development and design, and manufactures tailored, customer-specific solutions for tunnelling machines.

EAS[®]-HTL housed torque limiter

Clutches with dust and water protection

Adverse ambient conditions frequently prevail in heavy mechanical engineering applications. Dust, water spray, heat or cold not only place strain on the system personnel, but also on the individual components of the drive line.

Here *mayr*[®] power transmission offers with the EAS[®]-HTL a housed torque limiter which cannot be affected by adverse ambient conditions. It is available with different effective principles, i.e. in synchronous, ratchetting or disengaging design.

This last is also available as an EAS[®]-reverse with automatic re-engagement. In particular due to the adverse ambient conditions, the drive lines in heavy mechanical engineering are frequently encapsulated and therefore hard to access. On the disengaging EAS[®]-reverse, all functional processes can be automated via the drive. It re-engages automatically simply by rotating backwards slowly, without the need for pneumatics or hydraulics – ideal for drives which cannot be accessed for re-engagement.





Disengaging clutch with automatic re-engagement

The EAS[®]-reverse with patented disengagement mechanism is a disengaging clutch which automatically re-engages simply by rotating backwards slowly.

- Easy handling
- Long run-out time
- Robust double bearing
- Favourable service factor
- Extremely low backlash (< 0.05°)
- Hardened functional components
- Housing with standard IEC or NEMA dimensions
- Temperature range from -30 °C to +80 °C
- Torque range from 80 – 5,000 Nm
- Bore diameter to 100 mm



On the EAS[®]-reverse, the use of cup springs with a negative characteristic curve causes an instant drop in torque. This prevents the so-called pumping or breathing of the clutch. This generates low wear on the disengagement mechanism.

ROBA[®]-DS disk pack couplings

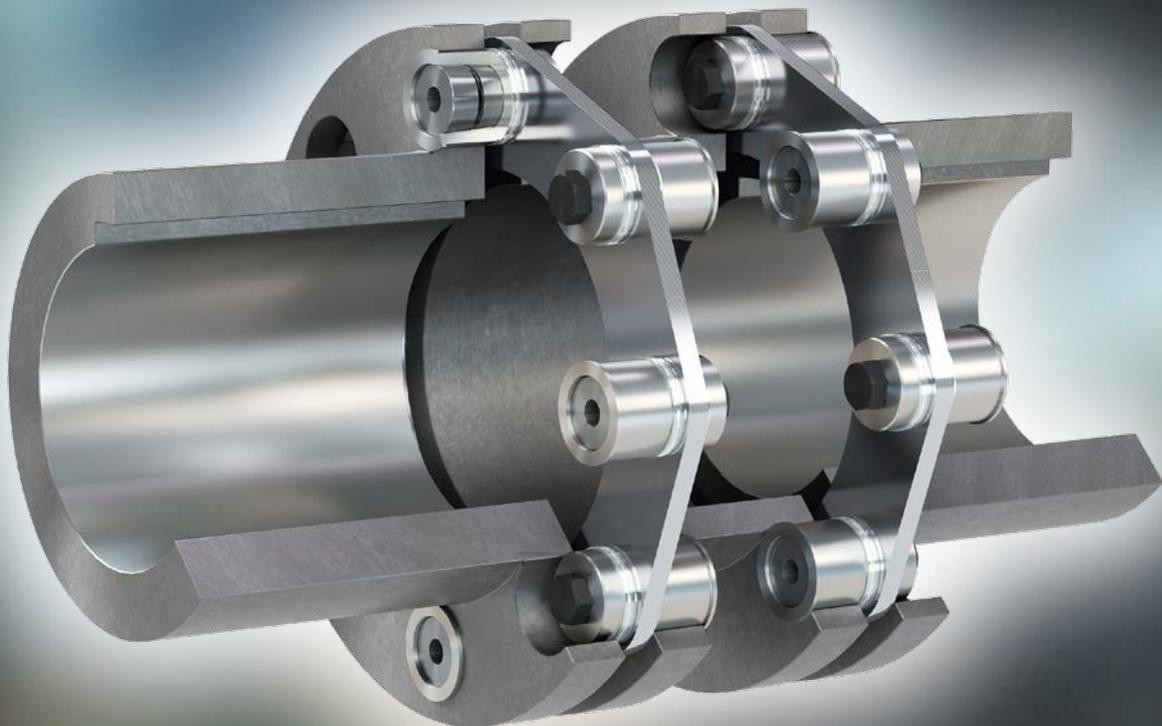
High-performance shaft couplings for high torques

The ROBA[®]-DS disk pack couplings by *mayr*[®] power transmission are robust, reliable and temperature-resistant. They are therefore particularly suitable for use in extreme ambient conditions. In addition, the ROBA[®]-DS couplings are wear-free, meaning that they reduce the required maintenance effort to a minimum.

mayr[®] power transmission has equipped the large ROBA[®]-DS disk pack couplings for high torques, i.e. with a nominal torque range from 22,000 to 110,000 Nm, with an installation-friendly, positive locking conical connection. This conical connection acts as a power transmission and reduces the screw tightening torques to a fraction of their amount in comparison to conventional frictional-locking designs. This makes installation and de-installation

substantially easier. In addition, the drive units such as the motor and gears need not be displaced in order to install and deinstall the coupling.

The ROBA[®]-DS disk pack couplings by *mayr*[®] power transmission simultaneously unite high performance density with absolute backlash-free function: They transmit torques up to the nominal torque backlash-free and with a constant, high torsional rigidity. The specified shaft misalignments can be 100 % utilized without affecting the transmittable torque. The disk pack couplings compensate for the radial, axial and angular misalignments on shafts, and thus protect the bearings against inadvertent loads and therefore unnecessary failure times and costs.





Performance density combined with backlash-free function

The large ROBA®-DS disk pack couplings with conical connection are easy to handle.

- Low screw tightening torques
- Can be installed / de-installed radially
- Easy and quick installation / de-installation
- No hydraulic installation tools required; can be installed with a torque wrench
- Backlash-free torque transmission
- FEM-optimized disk shape
- High torsional rigidity
- High performance density
- Compensation of axial, angular and radial misalignments
- Wear and maintenance-free
- Flexibility through customer-specific hubs and sleeves
- Torque range > 100,000 Nm

Product Catalogue

The detailed Product Catalogue **K.950.V_ _ _** with all constructional designs, technical data and dimensions is available for download on our website www.mayr.com.

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For this backlash-free, positive locking connection, far lower screw tightening torques are required in comparison to standard frictionally locking connections. This makes installation substantially easier. The shape of the disks is FEM-optimised.

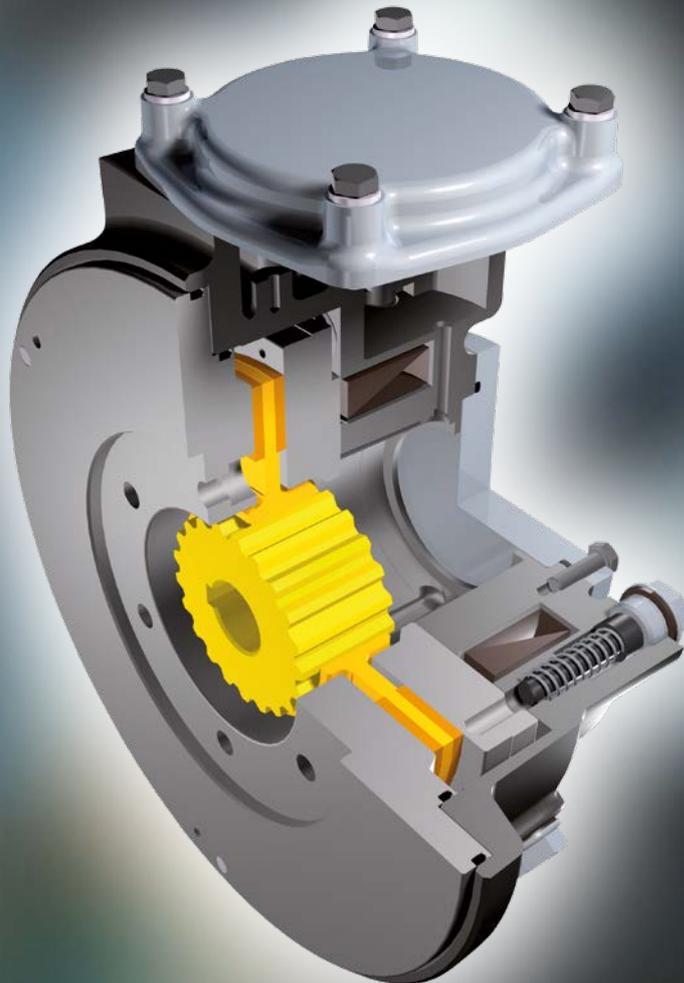
ROBA-stop[®]-S safety brakes

Robust brakes for outdoor applications

With the ROBA-stop[®]-S, *mayr*[®] power transmission as leading manufacturer has developed a safety brake especially for critical ambient conditions and outdoor applications. It accords with Protection IP67 and is therefore completely dust-tight and waterproof. The compact and solid housing with an integrated terminal box and without any pockets and grooves makes the brake resistant to damage caused by external influences. In addition, the high-quality primer on the brake body, the chrome or nickel coating of the inner components or the manufacture in rustproof stainless steel provide permanent protection against corrosion. A microswitch for release monitoring

is integrated into the terminal box and thus optimally protected, which guarantees that the motor only starts up when the brake is released.

This terminal box also features sufficient space to hold a rectifier for the brake's magnetic coil. In addition, a further microswitch can be integrated which inspects the wear on the friction linings. If the brake is used at temperatures below zero degrees Celsius, or in high air humidity, *mayr*[®] power transmission offers an anti-condensation heating system. This heating system prevents condensation water inside the brake.

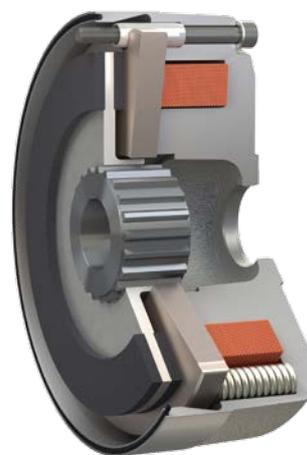




For peak loads with high friction work

The ROBA-stop®-S safety brakes work as holding brakes during normal operation. During critical operational situations, e.g. with EMERGENCY STOP or power failure, the brakes are designed to absorb peak loads with high friction work.

- Compact construction and small outer diameters
- Simple installation and operation
- Long maintenance intervals
- Completely dust-tight and waterproof
- Protection IP67
- Tacho attachment possibility
- Integrated emergency hand release
- Braking torque tolerance range 50 – 3,000 Nm



The ROBA-stop®-M safety brakes are designed for adverse ambient conditions. They are completely enclosed around the outer diameter and comply with Protection IP54 in standard design. Increased protection types are thus easily realisable. They cover a braking torque range from 2 to 1,600 Nm.

Product Catalogue

The detailed product catalogues **K.800.V** _ _ _ _ , **K.856.V** _ _ _ _ and **K.891.V** _ _ _ _ with all the construction designs, technical data and dimensions are available to download on our website www.mayr.com.

We are also happy to send you a printed catalogue.



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You can find the complete address for the representative responsible for your area under www.mayr.com in the internet.