KNOTT brakes overview
The basics – for around 2000 solutions
An experienced team that sees innovation as standard. Different brake sizes, various climatic factors, the toughest environments and extreme terrains. This is something we really know about – and this is what prompts us to offer the best brake solutions possible.

Our decades of experience in all these markets means we have the know-how and can project our thoughts to the heart of every project. Because that is exactly what we want: so that you get the right brake for your needs.

KNOTT develops and produces individual brake solutions for all branches: from agriculture and construction to mining, material handling, military use, ground support equipment, municipal and special-purpose vehicles.

Worldwide customer and spare parts service
Because we manufacture ourselves, we still stock, decades after OEM supply finishes, the necessary spare parts, just in case they may be needed.
We make your brake

Before we show you everything we offer, a few words about just what else comes with that.

Full service, optimum customer care and sound expertise from everyone in the team – from the first call to customer service.

From over 2000 models, we have the right solution for you. Because we know what our customers expect. And because we want to meet their needs!
The **KNOTT** basic types

## DRUM BRAKES

### Hydraulic brakes

- **Available sizes**: Ø 160 - 500 mm
- **Braking torques**: 300 - 25 000 Nm

### Mechanical brakes

- **Available sizes**: Ø 115 - 500 mm
- **Braking torques**: 200 - 40 000 Nm
- **Actuation system**: pneumatic or hydraulic

### Hydraulic simplex brakes

Simplex brakes use a fixed support at the bottom. This enables a zero-play parking brake function. Another advantage is the constant coefficient, making for responsive controllability. The hydraulic simplex brake is the most common brake. It is used in almost all applications.

### Wedge-actuated brakes

Wedge-actuated brakes are available as simplex and duplex versions. Operation takes place via screwed-mounted pneumatic or hydraulic cylinders. An additional parking brake function is possible with use of spring pack cylinders. Wedge actuated brakes are mainly used in commercial vehicle manufacture and are characterised by their fast response times. These brakes are well suited for use as part of ABS systems.

### Cam-actuated brakes

Robust cam brakes offer the advantage that they are operated not only mechanically by use of external cylinders, but also hydraulically or pneumatically. The combination of a service and a parking brake is thus made possible. Cam brakes are mainly used as parking brakes. But they may also be found in trailers with pneumatic brake systems, where they act as a combined service and parking brake in an S-cam version.

### Hydraulic servo brakes

Servo brakes are characterised by a movable support (usually on the lower surface), over which the frictional force of the leading brake shoe is transmitted to the trailing brake shoe. This design allows and ensures low operating forces and high braking torques. Servo brakes are used where large masses need to be braked, and where installation space is limited, as with forklifts.
Hydraulic disc brakes

Available sizes: Ø 200 - 1200 mm (disc diameter)

Braking torques: up to 120 000 Nm

Medium: brake fluid or mineral oil

Optionally with active piston return system

Hydraulic fixed-caliper disc brakes
These brakes are characterised by a fixed connection with the wheel suspension. The braking force on the brake disc is produced by opposing sets of two or more pistons mounted in opposition. The advantage: in contrast to floating or sliding calipers, fixed-caliper disc brakes have no sliding elements and can be used off-road or in dirty environments.

Hydraulic sliding caliper disc brakes
The application of the operating force in hydraulic sliding caliper disc brakes takes place via one or more pistons. The operating force of the opposite side is produced by the reaction force of the sliding caliper, which is supported by the brake pads on the disc. This design makes it possible for the brakes to be mounted as usual in the wheel rim. Generally, this brake design is suitable for on-road applications where restricted installation space is often the case. Typical applications are for municipal vehicles, ground support equipment and trailers etc.

Hydromechanical sliding caliper brakes
These brakes offer not only a service brake function but also an integrated parking brake function. The application of operating forces is from one side only, either hydraulically via the service brake piston or mechanically via the brake levers. The operating force on the other side is produced via the reaction force of the sliding caliper itself. One important advantage of our brakes is the reinforced components of the parking brake unit, which allow the vehicle to be stopped on steep gradients. The brakes are mainly used in construction machinery and special vehicles.

Spring-applied sliding caliper brakes
These brakes work according to the “fail safe” principle, which means in a normal operating state of the vehicle, the brake is released by constant pressure supply. If there is a pressure drop safe braking is ensured by the spring pack. Spring applied sliding caliper brakes are especially suitable as service and auxiliary brakes mounted on gearbox output flanges and axle final drive flanges. The encapsulated design is ideal for off-road applications.

Spring-loaded fixed caliper brakes
These extremely strong disc brakes are fitted with an integrated and fast response spring pack. Because there are no exposed components, this brake solution offers optimum protection against dirt, dust and mud. The total maintenance concept is simple indeed.

Spring-loaded brakes

Available sizes: Ø 250 - 1200 mm (disc diameter)

Braking torques: 4 000 - 25 000 Nm

Purely parking brakes

Discs of various strengths may be used. And the system can withstand extreme environmental temperatures of up to -50°C.
The operation of a pneumatic disc brake takes place on one side only via an external diaphragm cylinder. The operating force of the opposite side is produced via the reaction force of the sliding caliper. The advantages over conventional systems are compact design, ease of service, and stable braking performance.

Braking torques: up to 25,000 Nm
For 15", 20" and 22" rims
Actuation system: pneumatic

Mechanical sliding caliper disc brakes
Available sizes: Ø 150 - 1000 mm (disc diameter)
Braking torques: up to 6,000 Nm
Actuation system: pneumatic, hydraulic or with spring pack cylinders

These brakes employ a brake lever that is controlled by compressed air, a hydraulic or spring pack cylinder, or via a control cable or linkage and a hand-brake lever. Mechanical sliding calipers are used as service and auxiliary brakes. Whereby due to its greater wear volumes the mechanical clasp brake can also be used as a service brake.

Pneumatic disc brakes

For 15", 20" and 22" rims
Braking torques: up to 25,000 Nm
Actuation system: pneumatic

The operation of a pneumatic disc brake takes place on one side only via an external diaphragm cylinder. The operating force of the opposite side is produced via the reaction force of the sliding caliper. The advantages over conventional systems are compact design, ease of service, and stable braking performance.

Applications for pneumatic disc brakes are found in heavy commercial on-road vehicles such as trucks, buses, mobile cranes as well as in trailers.

Mechanical sliding caliper
Mechanical clamping brake

Mechanical sliding caliper for 15" rims
Pneumatic sliding caliper for 20/22" rims

Wet multi disc brakes

Available sizes: Ø 120 - 406 mm (4.7 - 16 inch)
Braking torques: up to 10,000 Nm
Actuating systems: hydraulic, hydraulic-mechanical (with locking mechanism), with spring pack, pneumatic

The KNOTT multi disc brakes basic system
Oil-cooled multi disc brakes made by Knott function according to the ball ramp principle and are available as multi and mono servo versions. Various friction material qualities, the number of discs, as well as differing ramp and wedge angles allow for innumerable variants. Braking performance and braking comfort can be fine tuned to meet the demands of any vehicle. Combined with Knott actuation cylinders, service brakes as well as parking and auxiliary brakes may be designed that are manually actuated, power assisted or use a power braking system. Wet multi disc brakes are mainly used in agricultural tractors, harvesting machines, forestry machines and construction machines.

Wet multi-disc brake with push wedge actuation
Actuator with pull rod

MULTI DISC BRAKES
**EM-BRAKES**

**Electromagnetic brakes**

Available sizes: Ø 37 – 500 mm

Braking torques: up to 1 500 Nm

Electromagnetic brakes can be designed not only as positive but also as negative brakes. Actuation takes place through a supply current or by breaking the current supply. These kind of brakes are mainly used for electric drives such as floor conveyors, industrial vehicles or electric vehicles, but also for various industrial applications.

**Special product development: the KNOTT electromagnetic hybrid drum brake**

This is our own design, one highly suited where space is at a premium and which produces high braking forces when compared to standard electromagnetic brakes.

**SPECIAL SOLUTIONS**

Take the opportunity to avail yourself of our know-how, and remember that the brakes rely on another important device: axles.

Which is why we offer combined brake/axle solutions fitted with KNOTT pendulum axles and KNOTT axle stubs. As with everything made by KNOTT, products match your needs exactly.

Our speciality: 
Your special needs!

On the basis of the products described here, we are happy to develop the brake solution that fits your particular project. In terms of power, size and type, we will develop the product with you as our partner. From the initial planning stage to the prototype and series production.

All products are tested on our own house test benches, which are among the most powerful in the world.

We would be happy to hear from you!
The Knott Group – global competency

The member companies of the Knott Group design, develop, produce and market braking systems for commercial and off-highway vehicles together with running gear components for trailers. Competent, one-to-one consulting and outstanding product quality are characteristic of all the companies within the Group. KNOTT’s own production plants and branch offices are supported by a world-wide dealership network.

www.knott-group.com