

# Brake



## The No. 1 vehicle safety element


The brake is always the one vehicle component most closely related to safety. The demands made on braking systems have increased enormously in line with increasing engine performance, so that tightened regulations apply for all braking system components. In the EU, for example, only brake pads which are compliant with the ECE-R90 standard may be used in the vehicle they are approved for. By meeting this standard, Herth+Buss guarantees that its brake pads correspond to the quality of original pads.

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**Wheel brake cylinder**

The wheel brake cylinder is a component of the drum brake which is secured to the brake anchor plate. In the wheel brake cylinder, there are two pistons which transmit the hydraulic pressure generated in the brake master cylinder and thereby press against the brake drum. At the highest point of the wheel brake cylinder is a bleed valve which is used to bleed the brake circuit.

Article number: J323\*, J324\*




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**Brake drum**

The brake drum is securely fixed to the wheel. When the brake is applied, the fixed brake shoes are pressed against the rotating brake drum. This requires very high forces and results in the brake drum heating up considerably. In order to withstand the mechanical and thermal loads, brake drums are usually made of cast iron.

Article number: J340\*




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**Brake Shoe Sets for Drum Brake**

The demands made on brake shoes are similar to those on brake pads, although brake shoes are subjected to much less load. For one thing, they are almost always only installed on the rear axles of passenger cars these days, which means they only contribute around 20 % to the braking process, and their design means the lining surfaces are much larger than those of brake pads. This means the temperature level of drum brakes is drastically lower than that of disc brakes.

Article number: J350\*

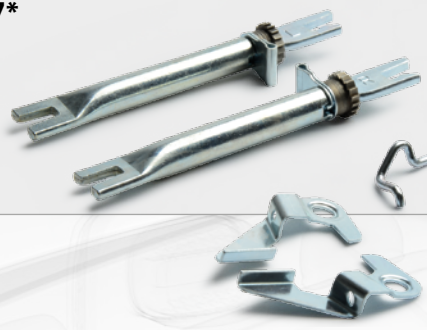


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**Adjuster, drum brake**

Compared to drum brakes, disc brakes have the design-related advantage of adjusting themselves and thereby keeping the pedal travel constant regardless of brake pad wear. In drum brakes, the brake shoes are pulled back by springs, at the same time pushing back the pistons of the wheel brake cylinder until they have reached their start position. If the brake lining wears, the pedal travel and therefore also the response time increase gradually. The less favourable angle at which the brake pedal is operated causes the pedal forces to increase. For this reason, brake shoe adjusters have been around for decades. These are made up of simple components but still carry out a very demanding job effectively and reliably.

Article number: J357\*



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**Accessory kit, brake shoes**

In the drum brake, the brake shoes are pressed against the cylindrical inner side of the rotating brake drum by the pistons. When a brake drum is dismantled, numerous springs and metal sheets can be seen. These serve to secure, reset and adjust the brake shoes and are important for correct brake functionality. As drum brake shoes rarely have to be replaced and the assembly effort is comparatively high, in this case all springs, pins and metal sheets should also be replaced.

Article number: J356\*




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**Guide sleeves**

Guide sleeves allow the calliper to slide axially with as little clearance as possible and therefore centre the brake pads in respect to the brake disc. In contrast, worn guide sleeves let water and dirt penetrate and lead to increased brake calliper clearance and rattling noises. In certain circumstances, this can lead to jagged and therefore uneven wear on the brake pads and impaired braking behaviour.

Article number: J327\*




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**Brake disc**

Brake discs are securely attached to the wheels. When the brake is applied, the rotating brake disc is grasped by two brake pads using the brake calliper. The vehicle's kinetic energy is converted into heat by the friction between the brake disc and the brake pads. One of the brake disc's tasks is to absorb this heat and release it into the ambient air. For this reason, the brake disc must simultaneously withstand very high mechanical and thermal loads. Wear can be measured by means of the thickness of the friction discs, the thinning brake disc can absorb increasingly less heat and the relative load increases. For this reason, the brake disc must be replaced when it reaches a minimum thickness specified by the manufacturer.

Article number: J330\*, J331\*



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**Accessory Kits for Brake Pad Sets**

As part of the accessory kits, free springs are exposed continually to pad abrasion, aggressive sand and heat, which is bound to lead to signs of wear. To be able to guarantee the reliability of the brakes, these parts should also be checked at regular intervals and replaced if necessary!

Article number: J366\*




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**Brake master cylinder**

The hydraulic pressure that is passed on to the brake callipers and wheel brake cylinders is generated in the brake master cylinder. The brake pedal is used to operate a piston which acts on the brake fluid. Legislation requires that failure of the hydraulic system does not cause the complete brake system to fail; a dual-circuit brake system is used in passenger cars for this reason. Two independent pressure chambers are located in the brake master cylinder; each of these is connected with a part of the wheel brakes.

Article number: J310\*




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**Brake Pad Sets for Disc Brake**

Brake pads should have constant and consistent friction value as possible. In practice, however, the friction value not only changes under the influence of temperature, but also with the speed from which the vehicle is slowed and under the influence of many other factors. The brake pad has to be able to stand high temperature without the friction value collapsing. It should also be low-wear, low-noise, environmentally friendly (asbestos-free since the 1980s) and favourably priced.

Article number: J360\*, J361\*




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**Brake hose**

The brake hose forms a flexible connection between the rigid brake line and the brake calliper or the wheel brake cylinders which are usually located on the suspension and involved in spring and steering movements. In order to be able to transmit the full hydraulic pressure, the brake hose is wrapped in multiple layers of webbing; these still allow a small residual elasticity. An additional rubber layer is used as protection from external damage. What are referred to as steel flex lines, in which the reinforcing webbing is composed of a steel braid, promise a harder activation point on the brake pedal and thus improved modulation.

Article number: J370\*



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**Brake Calipers**

In the brake caliper, the brake fluid acts on one or more pistons which are arranged at right angles to the surface of the brake disc. The brake callipers surround the brake disc in such a way that a brake pad is pressed onto the brake disc from both the inside and the outside. The major advantage of the hydraulic system is that the brake callipers are automatically centred (floating callipers) to ensure the same pressure is exerted on all the pistons. When the pistons are the same size, the brake pads on the inside and outside are pressed onto the brake disc with the same pressure. In addition, when brake callipers with several pistons are used, piston size can be varied to distribute the contact pressure.

Article number: J321\*, J322\*

