

Press Release

Tips on tires



As important today as 100 years ago: the right tire pressure for safe driving

- ▶ As early as 1927: DEKRA magazine educating motorists
- ▶ Check tire pressure regularly and adjust for load if necessary
- ▶ Tire pressure monitoring systems mandatory in new EU vehicles since 2014

Unscrew the valve cap, attach the gauge plug, set the desired air pressure – done. It sounds simple, it is simple, and yet it is often forgotten, although the tires are the only link between a car and the road. This is by no means a new topic, as can be seen by looking at an almost 100-year old “DEKRA Magazine”.

The rubber of a tire has to withstand enormous forces when accelerating, braking or turning, often at high speeds, and all that on just four postcard-sized surfaces. How well this works depends not only on the size, rubber mixture and profile of the tire. Above all, tires need to be treated with care: hitting the curb with a lot of momentum or taking every curve with screeching tires damages the rubber just as much as parking with half a tire width on the edge.

Tire pressure: a crucial factor for lifespan and driving characteristics

However, the decisive factor influencing the lifespan of tires and the driving properties of the car is the tire pressure. Even a shortfall of 0.5 bar (~7 psi) can increase fuel consumption and lead to unstable driving behavior, especially in curves. With longer durations and faster driving, there is a risk of tire failure.

None of this is new information. DEKRA has been working to improve road safety for 100 years. As early as 1927, the “DEKRA Magazine” published a detailed article on “The consequences of incorrect treatment of motor vehicle tires”. With photos of broken beads, ground rubber and damaged rims, DEKRA highlighted the consequences of incorrect tire pressure. The safety experts explicitly referred to the still relatively new “high-pressure tires”. Although removable pneumatic tires were already the general standard for cars, older vehicles often still rolled on solid rubber tires.

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At the time, DEKRA warned:

"It is by no means an exaggerated claim that it is solely the consumer's fault that many tires fail to achieve the mileage that a car tire should actually achieve. This is due to carelessness, negligence, ignorance, or inattention, and in the majority of cases to a lack of consideration. People are not aware of the fact that a tire with insufficient air pressure is not able to carry the weight without subjecting the casing and the tube [...] to excessive strain, which leads to premature destruction."

Specifically, the tire's casing is "excessively compressed or squashed" at low pressure, which leads to "overexertion of the cord inserts and breakage of the threads", wrote DEKRA experts in 1927.

The consequences of insufficient tire pressure

In principle, nothing about this has changed in 100 years. Even with modern tires, different areas are unevenly strained, causing the outer edges wear faster than the center of the tread. In addition, the rubber is deformed, and the fabric inserts rub against each other. This friction causes the rubber to heat up excessively. In extreme cases, layers can even peel off or the tire can burst.

So, when in doubt, should you inflate the tire a little more than intended? "That's not a good idea either," warns DEKRA tire expert Christian Koch. Excessive pressure neither helps driving safety nor lifespan. "In extreme cases, the center of the tread bulges. This reduces the contact area of the tire. The result is reduced traction, a longer braking distance and faster tread wear."

But how do you know if your tire pressure is correct? Since 2014, every new car in the EU has been equipped with a tire pressure monitoring system (TPMS). In the U.S., these systems have been mandatory since 2007. If the inflation pressure of a wheel changes, a warning light comes on. Some cars even have individual displays for all four wheels – here the pressure is measured at the valves of each tire.

However, to be on the safe side, you should still check the pressure regularly. At the latest, though, when you are going on vacation, or the car is fully loaded for some other reason. This is because the correct tire pressure depends on the load and tire size and usually differs between the front and rear axles.

Rule of thumb: the higher the weight, the higher the pressure. The heavy engine is located at the front, which is why the front wheels often require a little more air. But if you're setting off on holiday with a full load or planning to drive long distances at high speeds, you'll need to increase the pressure by up to 1 bar (~14 psi). All the values specified by the manufacturer can be found in the operating instructions. In addition,

most vehicles have a sticker with the relevant information on the B-pillar inside the driver's door, in the fuel filler flap or in the glove compartment.

Checking tire pressure is not rocket science

A hundred years ago, checking tire pressure was much more complicated than it is today. Gas stations were not on every corner, and many didn't even have a pump and a gauge. And if they did, they were usually hand-operated, rather inaccurate pen or tube manometers with a spring and scale. Or simple hand pumps with a manometer, like the ones we know today as bicycle pumps.

Today, you can do the whole thing quickly at any gas station: unscrew the valve cap, attach the plug of the mobile measuring device, and adjust the pressure using the plus and minus buttons on the compressor. Some stations also have permanently installed compressors with a long hose. The value is digitally displayed and preset on the device. Then clamp the hose and start the test. The compressor automatically adjusts the pressure.

5 tips for a long tire life

- Regularly check the air pressure and adjust it when driving with a full load, for example. Then re-initialize the car's measuring device. This is not necessary for vehicles with a display for each wheel.
- Check tires for damage from time to time.
- Defensive driving is easier on the tires.
- Cross curbs slowly, if necessary, and at a right angle. When parking, make sure that the tire is not squashed.
- Regularly swap the tires between the axles at the front and rear. This ensures that they wear down evenly. Be sure to observe the recommended rolling direction.

Captions

1. As early as 1927, the "DEKRA Magazine" warned against the incorrect handling of motor vehicle tires.
2. The correct inflation pressure is a crucial factor for the driving behavior of the car and the service life of the tire.

About DEKRA

For 100 years, DEKRA has been a trusted name in safety. Founded in 1925 with the original goal of improving road safety through vehicle inspections, DEKRA has grown to become the world's largest independent, non-listed expert organization in the field of testing, inspection, and certification. Today, as a global partner, the company supports its customers with comprehensive services and solutions to drive safety and sustainability forward—fully aligned with DEKRA's anniversary motto, "Securing the Future." In 2024, DEKRA is expected to generate revenue of 4.3 billion euros. Around 48,000 employees are providing qualified and independent expert services in approximately 60 countries across five continents. DEKRA holds a Platinum rating from EcoVadis, placing it among the top 1% of the world's most sustainable companies.