

- Haulage contractors / Fleet owners
- Fleet service providers / Fleet checkers
- Lorry drivers of the haulage contractor / fleet
- Service station operators
- The environment and society

Measurement of lorry tyre condition without internal investment.
Online instead of on-board. At any time, throughout Europe.





**There are many reasons why a deal can fail.
Most of them can be avoided from the outset.**

Approximately every 6 minutes there is a tyre blowout on German roads. The most frequent cause of this is gradual loss of pressure or incorrect tyre pressure. Often these tyre conditions cannot be detected simply by visual inspection. Lorry drivers who do not continually check the condition of their vehicle's tyres risk expensive standstill times and loss of earnings. Worse still, they put at risk their own safety and the safety of other road users.

As well as tyre pressure, lorry drivers should be well informed about the condition of their tyres in general. Anyone who fails to comply with the minimum tread depth of 1.6 mm not only risks penalty points on his driving license, he also risks his own safety and the safety of other road users. And last but not least, tyre wear is an important indicator of possible wheel misalignment which, in turn, can result in a significant increase in fuel consumption.

To help fleet managers and drivers with their obligation for inspection, fleet service providers offer quarterly fleet checks.

But despite these checks, however, in case of doubt tyres are often changed before it is necessary. In the final analysis, on average 12% of all lorries have tyre pressures which are too low and about two thirds of all lorries have misaligned wheels. This can only be prevented by considerably closer tyre monitoring, ideally with permanent access to important tyre condition data such as pressure, tread depth and wear patterns.

But this is difficult to implement because the fleet is constantly travelling to all points of the compass and drivers are often somewhere between Barcelona, Belgrade or Bargteheide, which means that, between rest periods and time pressure, they can never come home punctually for a weekly or even a monthly fleet check.

The CLASSIS® tyre data network is an information link on a common web platform for all those involved in the road freight business that not only turns conventional ideas about the safety of lorry tyres and economic factors completely upside down - it revolutionises them.

Tread depth, tyre pressure, wear and axle load can be measured throughout Europe by a drive-over at service stations - this is something really new!

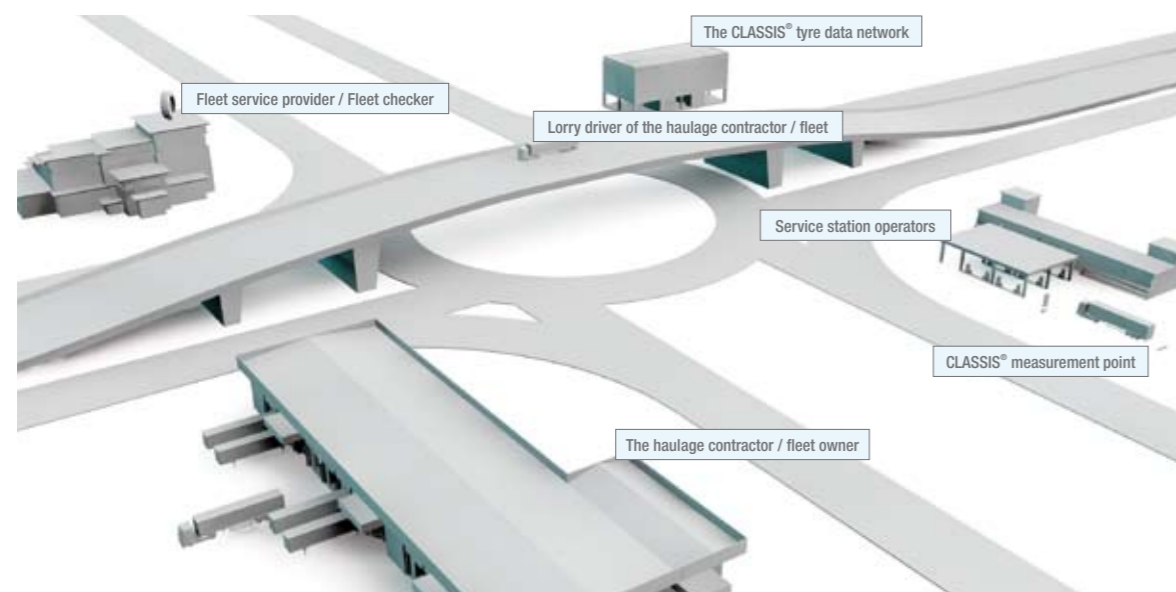
Tyre pressure checks with on-board units, so-called TPMS, already exist. However, these systems are still very expensive and, above all, they do not comprise the entire fleet checking process.

In contrast, the CLASSIS® tyre data network provides a comprehensive examination of tyre condition without internal investment. In addition to the tyre pressure, the tread depth, wear pattern and axle load are also measured.

This is how it works: Throughout Europe, CLASSIS® measurement points are installed at selected service stations along the main freight traffic routes. A CLASSIS® measurement point is based on a patented measurement process which automates the recording of tyre data as a lorry drives over it and sends this data to authorised recipients by SMS or Internet-based data transfer.

In the CLASSIS® tyre data network, both the fleet service provider and the haulage contractor in a completely different location know whether lorry number 123, which has just returned from the Balkans and is taking a break in Nuremberg, has the correct tyre pressure or whether it will need new front left tyres when it arrives. They also know whether the alignment of the front axle of the trailer needs checking due to the tyre wear pattern.

Of course, the driver information system means the driver can be directly integrated in this exchange of information - either by mobile phone or a conventional printout at the service station. Because only each individual drive-over is billed (Pay per Use), there is no increase in annual costs than previously with conventional fleet checks.



In the CLASSIS® tyre data network, everyone benefits because automatic tyre condition measurement creates a genuine win-win situation ...

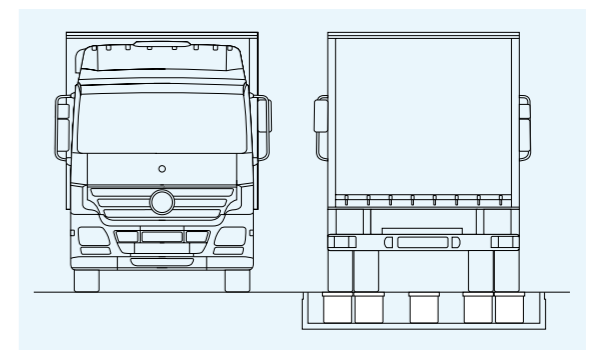




Quality workmanship always pays? At any rate manual tyre checks should be eliminated as quickly as possible.

Subjective checks on tyre condition by visual inspection and the tedious use of vernier calipers is now a thing of the past. For both fleet owners and fleet service providers, this is a slow, unreliable and error-prone drain on time and resources.

In contrast, the information obtained from the CLASSIS® tyre data network is transmitted to network participants around the clock. Real time transmission with an interface to all common ERP systems enables direct decisions and confident planning - regardless of where a lorry happens to be. Reserves of tread depth can be assessed and made use of without endangering road safety. Only the drive-over is billed. The system recognises the vehicle number plate by means of a camera. The system checks whether the vehicle is registered in the network and assigns the measurement data to the registered vehicle.



The technological heart of a CLASSIS® measurement point: modules installed in the road measure the tyre condition on each axle of lorries which are registered in the network as they drive over them.

Winners in the CLASSIS® tyre data network

- Haulage contractors and fleet owners realise considerable potentials for financial savings
- Fleet service providers optimise the process chain for fleet checks and save personnel resources
- Drivers for haulage contractors or fleets are no longer worried about spot checks on their vehicles and can drive with confidence
- Service station operators gain a new source of income from drive-overs and achieve cross-selling effects as CLASSIS® measurement point operators
- The environment and society benefit from increased road safety in the heavy transport sector and significantly lower pollution of the environment

Money never sleeps. Even while drivers are taking a break, haulage contractors can continue to earn good money.

Organisational effort and expense, primarily caused by gathering the fleet together on company premises at weekends, previously resulted in lorry tyres being systematically checked at most only once every three months in the course of conventional fleet checks.

However, recent studies* show that shorter tyre inspection intervals provide tangible financial benefits to haulage contractors in terms of fuel consumption and tyre wear. Shortening the inspection intervals has a proportional effect on excess fuel consumption and tyre tread reserves.

The rule of thumb for both fuel consumption and tyre treads is:

Half the interval = half the excess consumption!

In order to exploit this previously unused potential, CLASSIS® tyre data measurement points are installed where lorries make their money: namely on the road at service stations throughout Europe.

Here, the tyre condition check is carried out almost automatically, just before compulsory breaks and rest periods.

Benefits for haulage contractors and fleet owners at a glance

- Reduction of average consumption by approx. 2%
- Reduction of average CO2 emissions by up to 2 tons per lorry
- Increased tyre economy
- Incorrect tyre pressure is detected at an early stage ➤ Tyre service life is significantly increased
- Reduction of the danger of blowouts ➤ Breakdown times and costs are minimised
- Early detection of incorrect wheel alignment
- No internal investment required, only "Pay per Use" with a simple billing process
- No technical installations or conversions to the lorry required
- 24/7 online data access
- Planning security for service intervals
- Greater road safety and no worries about spot checks on the motorway

* Of course, CO2 emissions depend on fuel consumption. If we assume that a 40-ton lorry in mixed-traffic operation uses approximately 35 litres of diesel per 100 km and 2.63 kg CO2 are produced by every litre of diesel that is used, this means $35 \text{ l} \times 2.63 \text{ kg CO}_2 / (\text{l} \times 100 \text{ km}) = 0.92 \text{ kg} / \text{km}$ or $920 \text{ g} / \text{km}$.





That's real service – the fleet checker examines the tyres from his desk and the dealer has all the correct sizes in stock.

With CLASSIS®, fleet service providers can now outsource essential fleet checking services for lorry tyres. Namely to where his customers' lorries are: on and near the motorway. For fleet checkers, this also means:

Elimination of tedious and error-prone fleet checking processes at weekends at the haulage contractor's premises. Elimination of organisational effort. Elimination of extra working hours on Saturdays.

And on the other hand:

Within the CLASSIS® tyre data network, both fleet checkers and their customers have online and real-time access to all tyre condition data at any time and throughout Europe. Up to date, objective, and with easy access from their desk. They can optimise their processes by planning on the basis of more reliable and more objective tyre data so that they can purchase, as well as document and coordinate, to meet their specific needs.

Benefits for fleet checkers at a glance

- 24/7 online access to data and information about the condition of tyres in the fleet
- Objective measurement data
- Planned services, without waiting times
- Lower process costs
- Fewer sources of error
- Less complaints
- Creation of added value

Many lorry drivers are very cunning when it comes to tread reserves and tyre safety.

A driver needs to drive - not to stand still. To keep things moving in an age of increasing time pressure, competition, longer traffic jams and greater number of lorries on the road, a modern haulage contractor should not just think about himself, but rather of how to relieve the stress on his drivers.

If the haulage contractor is a partner in the CLASSIS® tyre data network, this considerably reduces pressure on the driver and allows him more time to take care of other important matters. He knows that his tyres can be simply and reliably checked as they drive over the automatic system at a service station parking area.

He is also happy that he does not have to make a special journey to the company premises of the fleet service provider to have his tyre condition manually checked.

A benefit that he also shares with the fleet manager. Tyre checks are now carried out on the road and not – perhaps on Saturday, or during “special meetings” – at the fleet premises. Regular monthly or weekly checks of tyre condition at the CLASSIS® measurement points protect him against unpleasant surprises at the next spot check on the motorway and against tyre blowouts. After all, he already has enough stress ...

Benefits for lorry drivers at a glance

- Support with his obligations
- 24/7 online information about tyre condition
- Improved capability of achieving agreed fuel saving targets
- Reduced standstill times due to tyre blowouts
- Confidence about his tyres and road safety
- Less unpleasant surprises at the next vehicle spot check





Diesel is no longer a money-spinner. CLASSIS® provides pure added value for filling station and service station operators.

Overall, turnover from fuel sales has been declining for several years now. Service station operators are always looking for business ideas to make lorry drivers stop at their station. As well as the urgent necessity for lorry parking areas, operators are discovering that their premises are a good reason to participate in other interesting business ideas by providing an area for a CLASSIS® measurement point and profiting from every lorry who drives over it.

Because, on the one hand, a CLASSIS® measurement point means more lorries and customers come to the station and generate more sales.

And, on the other hand, the level of recognition is increased. A CLASSIS® measurement point significantly increases the attractiveness of a service station and brings additional benefits and earnings.

In principle, every service station with a sufficient number of lorry parking places is suitable for the installation of a CLASSIS® measurement point.

Benefits for service station operators at a glance

- Increases awareness and utilisation
- Additional sources of sales and earnings, not just due to cross-selling effects
- Unique selling point (exclusive to the region)

**Lower consumption, more profit.
Business is paradoxical when it comes to ecology.**

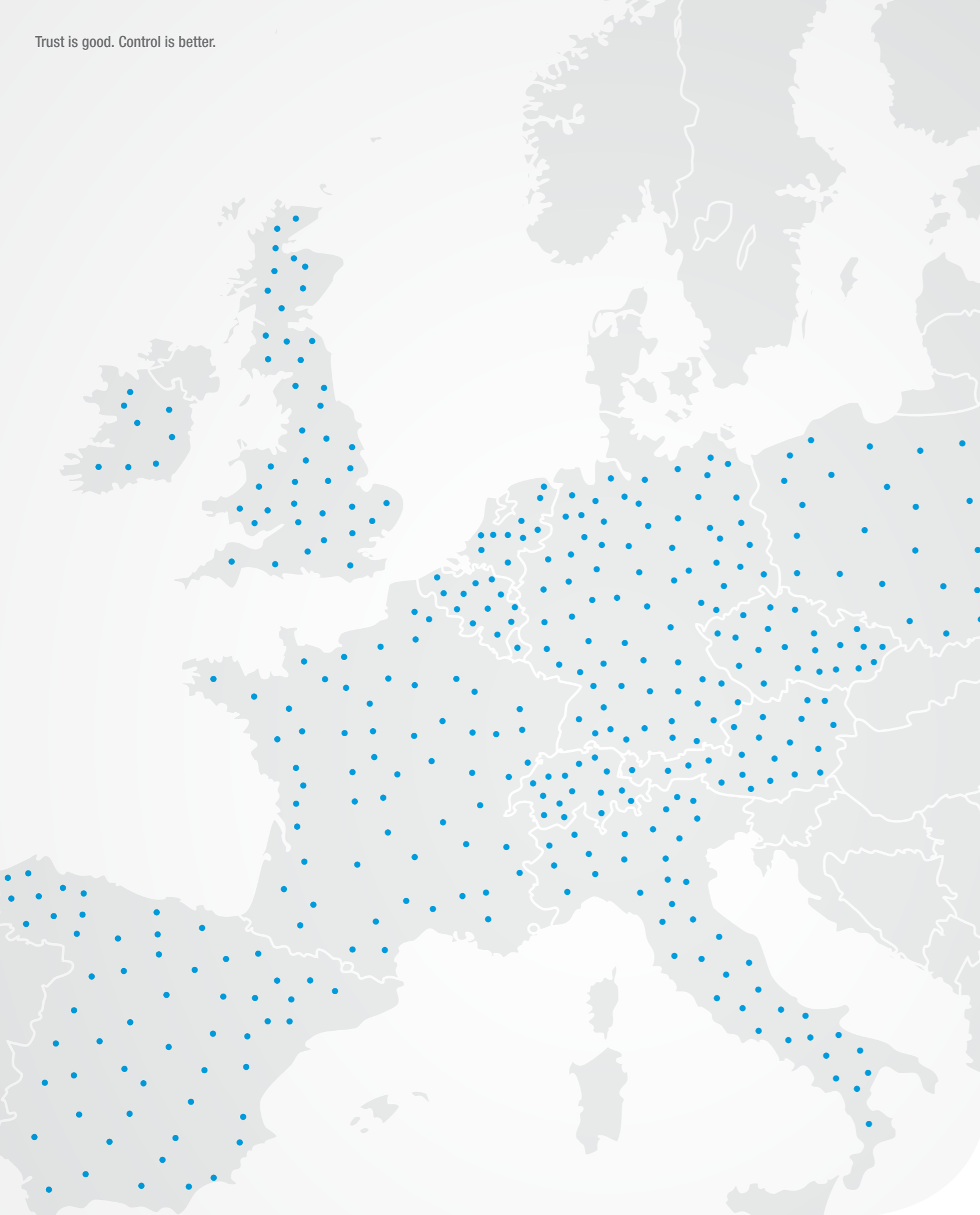
Lorries will continue to dominate German motorways and main roads. According to a forecast by the EU Commission, the amount of heavy transport will have doubled by 2020 compared with the amount in 2000. In view of the German climate protection target of a 40% reduction in CO₂ emissions by the year 2020, the road transport sector will have to make a significant contribution. The fact is that lorries will play an essential role in the reduction of CO₂ emissions.

The government will also need to create incentives for the use of more efficient lorry and engine technology as well as for energy-efficient and environmentally friendly driving. In addition to considerable savings in the use of fossil energy, haulage contractors who are partners in the CLASSIS[®] tyre data network can also make an important contribution to the reduction of annual CO₂ emissions.

Benefits for the environment and society

- CO₂ savings of up to two tons per articulated lorry each year
- CO₂ savings potential with approx. 380,000 heavy lorries in Germany » approx. 775,000 tons
- Fuel savings of up to 770 litres of diesel per articulated lorry per year
- Potential savings with approx. 380,000 heavy lorries in Germany » Approx. 292 million litres of diesel fuel





The CLASSIS® tyre data network: In future you will be informed of the condition of your lorry tyres round the clock.

Tyre condition checks in the context of the CLASSIS® tyre data network open up completely new outlooks for the above groups of users, which were inconceivable up to now with previous manual inspections. To illustrate and calculate the potential savings and benefits which result from the CLASSIS® tyre data network throughout Europe, we have cited various scientific and business experts in addition to our own investigations.

The following statements from various independent studies reinforce what has already been said:

Data and facts which speak for CLASSIS®

- **Kfz-Anzeiger:** "The average fuel consumption of a modern lorry is still approx. 35 l / 100 km." ¹
- **Conti:** "An average of 12% of lorries in Europe have too little pressure in their tyres, which results in increased fuel consumption." ²
- **Michelin:** "Too little or too much pressure reduces tyre life and causes significant cost increases." ³
- **Goodyear/Volvo:** "Incorrect wheel alignment leads to increased rolling resistance and an increase in fuel consumption of up to 4.5%." ⁴
- **Volvo:** "Two thirds of all lorries in Europe have incorrectly aligned wheels." ⁵
- **ADAC:** "Approximately every 6 minutes there is a tyre blowout on German roads." ⁶
- **DEKRA:** "Better and more frequent checks of lorry tyres prevent blowouts and increase safety." ⁷

Sources:

- ¹ Lorry fuel consumption values: <http://www.kfz-anzeiger.com/test/trucks.html#schwer>
- ² Conti Study: <http://www.rema-tiptop.com/portal//miniclient/access/namefile.php?file=8335.pdf>
- ³ Michelin Study: <http://www.michelintransport.com/ple/front/affich.jsp?codeRubrique=37&lang=DE>
- ⁴ Goodyear Study: http://eu.goodyear.com/de_de/images/Effizienter_Kraftstoffeinsatz_tcm61-70724.pdf
- ⁵ Volvo Study: http://www.volvo Trucks.com/trucks/austria-market/de-at/Online_services/fuelwatch/Pages/Kraftstoff-sparen.aspx
- ⁶ ADAC lorry breakdown study 2010: http://www1.adac.de/adac-im-einsatz/pannenhilfe_notruf/truck_service/pannenhilfe/news/presse/mldg/pannenstastik_2009.asp?TL=2
- ⁷ Dekra Study: http://www.brw-bonn.de/fileadmin/user_upload/pdf/trends%2Bfacts/2010/T_F_7_2010_DEKRA_Praes_Reifenplatzer_Nutzfahrzeuge.pdf

CLASSIS® is the tyre data network from ProContour GmbH

Daimlerstraße 9-11
D - 79761 Waldshut-Tiengen

Tel +49 7741 91789 - 0
Fax +49 7741 91789 - 89

info@classis.de
www.classis.de