NOW WITH WEAR PATTERN
AIR PRESSURE COMING
SOON TOO!

- Lorry transport and logistics
- Clients operating in accordance with ADR and GGBefG
- Lorry tyre industry and trade
- Associations and institutions

- Car dealerships
- Parking
- Filling stations
- Marketing

- Traffic police
- Public authorities in cross-border traffic
- Public authorities and organisations involved in safety tasks

ProContour H3-D facto:

Automated measurement of tyre profiles in the lorry tyre safety cycle.

procontour

Traffic Safety. From a different Point of View.

ProContour H3-D facto:

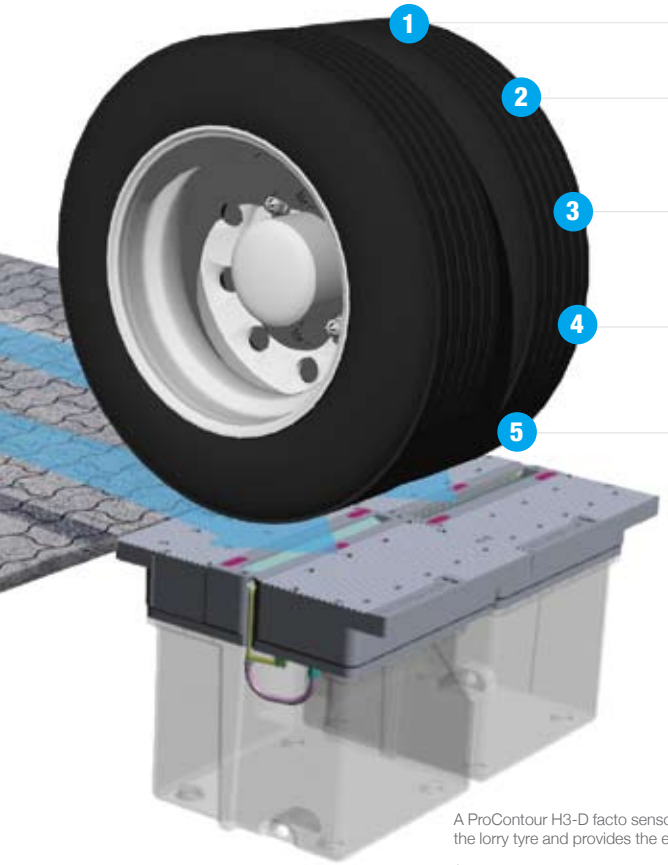
The number of road accidents due to defective lorries tyres is too high. Prevention helps to prevent the worst.

During 2007, in Germany alone 12,315 people were in accidents involving lorries, 215 of the fatally injured were lorry passengers[1]. Goods traffic on the roads is continuing to increase. At least the long-term prognoses are clear according to the estimations of the German Traffic Safety Council (DVR)[2].

It can, therefore, only be in the interests of all those affected by and significantly involved in goods traffic that the most efficient use is made of all safety relevant potentials related to people, means of transport, transported goods and the roads.

Tyre manufacturers invest millions in the safety of their lorry tyres. Haulage contractors are still reliant on manual tread depth measurements on stationary vehicles for sustaining this safety, even in flowing traffic.

Now, for the first time, ProContour H3-D facto provides a worldwide patented tyre measuring system which automatically and reliably measures tyre tread depths at various measurement points, even in flowing traffic. This opens up completely new perspectives.



A ProContour H3-D facto sensor head consists of a laser for illuminating the traversing tyre and a high-speed digital camera that records the 3-D tread of the lorry tyre and provides the evaluation unit.

[1] Source: www.dvr.de
[2] Source: www.bmvbs.de: The federal government anticipates a dramatic increase in lorry traffic up to 2025. This is highlighted in a traffic prognosis commissioned by the federal transportation ministry that is to form the basis of the new Federal Traffic Route Plan 2009. According to this, the miles driven by lorry traffic in the next 17 years will rise by 40 percent and total traffic (transported tons x distance travelled) by no less than 84 percent (…)

Transporting and forwarding goods
ProContour H3-D facto provides the fleet manager a fast, automated way of checking and overseeing the tyre tread depth of his fleet on the company site at any time.

Contractor as per the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) and the German law on the transportation of dangerous goods (GGBefG)
The ProContour H3-D facto continually provides clients of dangerous goods transport companies with automated documentation of the tyre condition of incoming lorries entering their company site.

Tyre Industry
Assured acceptance is an important step towards product innovation. With ProContour H3-D facto, it is now possible to generate statistical series, field experiments and market research automatically with sparing use of resources.

Tyre trade and service
So far, regular reports on the condition of the tyres of service customers were only previously possible with the heavy involvement of technical field service personnel. ProContour H3-D facto offers completely new possibilities for optimising both monitoring and the supply and order chains.

Associations and institutions
Tyre safety in the transport and forwarding of goods is an economic competitive factor that is all too neglected by low-cost fleets. ProContour H3-D facto is not only in the interest of road safety, but was also designed for associations and institutions to politically and publicly represent the interests of members.

Only then does political will cover the lorry tyre safety cycle.

ProContour H3-D facto:

**Measures the tyre tread depth for increased safety.
Now also measures air pressure and wear pattern.
For more safety and efficiency.**

Worn-out tyres cannot be perfunctorily glossed over

Tyre safety is mandatory and common sense. Prevention protects against repression. But because everyday life in the business of transportation and freight forwarding is already difficult enough, measuring with our ProContour H3-D facto should be kept as simple as possible:

Installed in an underground channel or manhole, the sensor heads record the tyre treads of lorries moving over it and provide the measurement results for further analysis and evaluation to mobile or stationary PC terminals. The processing of measurement results in real time does not in itself constitute any challenge for the system, even with high traffic volumes of fast moving lorries or trailers with tandem axles. With twin tyres, each tyre is measured individually and displayed separately on the graphical user interface.

The sensor head itself consists of a laser for illuminating the moving tyre and a high-speed camera that records the 3-D tread of the lorry tyre and forwards it to the software for measurement. Operation of the system does not require any special know-how and can be carried out intuitively after a short introduction. Even when it concerns the measurement and documentation of tyre pressure…

Incorrect air pressure can cost lives. And, at the very least, hard cash

Air pressure that is too high or low? Both affect the handling characteristics of the lorry: Mileage, consumption, driving comfort, transmission of driving and braking forces. Insufficient air in the tyres causes excessive cushioning of the cord casing – the tyre becomes hotter, rolling resistance and wear increase and, in the worst case, this can lead to an accident due to flat tyres and skidding.

In contrast, excessive air pressure reduces tyre mileage. Slippage increases and greater slippage means heavier wear, primarily in drive axle tyres.

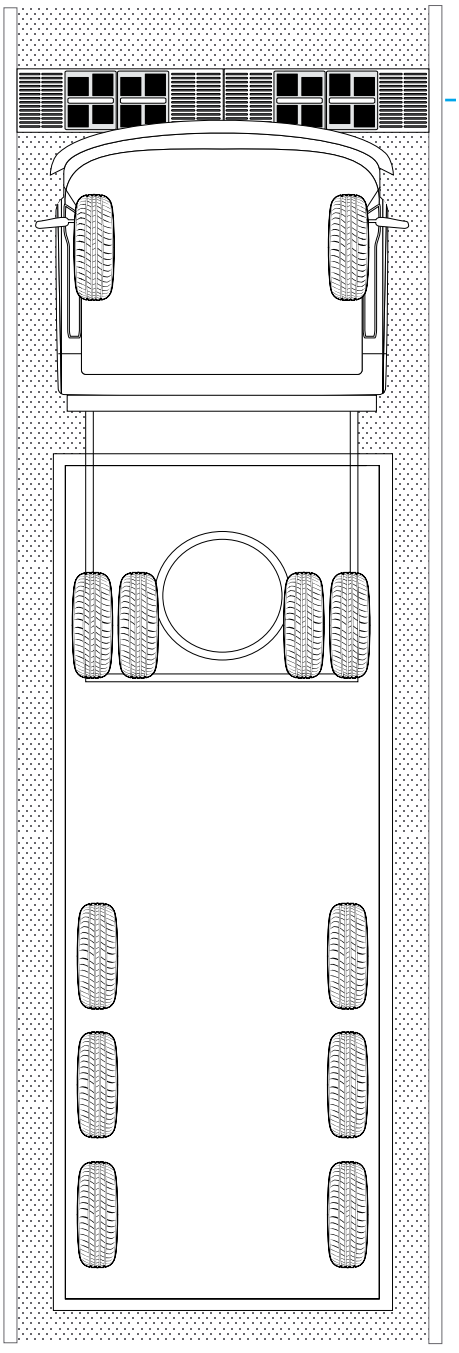
Avoid all these consequences. Air pressure checks should be carried out every two weeks on cold tyres. ProContour H3-D facto now allows you to regularly and automatically check the optimum, safe and efficient tyre inflation pressure.

Want to check the wear pattern at the same time? It's all a question of the setting

All tyres wear during use, a fact indicated by decreasing tread depth. Incorrect inflation pressure can accelerate this. The tread pattern gives the expert further indications:

If the axle settings match and the brake system and suspension are working properly, the wear is evenly spread. If wear is uneven, this can point to non optimum settings or possible damage to the chassis (axle geometry, defective shock absorber, etc.). Experts therefore advise having lorry tyres checked regularly by a specialist approx. every 10,000 -15,000 km.

From now on you can do this with ProContour H3-D facto at any time and at low cost: without manually entering the data, you will learn all you need to know about tyre pressure and tread depth in a single measuring process.

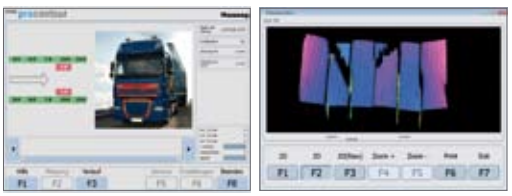


◂ Schematic drive-over situation of a five-axle articulated lorry on company grounds: ProContour H3-D facto itself measures the tyre conditions of several lorries travelling behind one another.

The measurement data are transferred via a data cable to a PC station located in the company premises.

The system is operated intuitively using a graphical user interface. All tyres recorded are visualised on the graphical user interface during the measuring process. If the tread depth falls below the minimum tread depth configured in the system, the measured image is stored in the history where it can be viewed/printed at any time.

The sensor heads are installed in an underground channel. For tyre depth measurement ProContour recommends a total of four modules (two left and two right of the centre of the vehicle).



All tyres recorded are visualised on the graphical user interface during the measuring process. If the tread depth falls below the minimum tread depth configured in the system, the measured image is stored in the history where it can be viewed/printed at any time.

Simple and ergonomically optimised operation of the system is intuitive using a graphical user interface.

ProContour H3-D facto:

The lorry load is borne by the tyres. But who is responsible for the load?

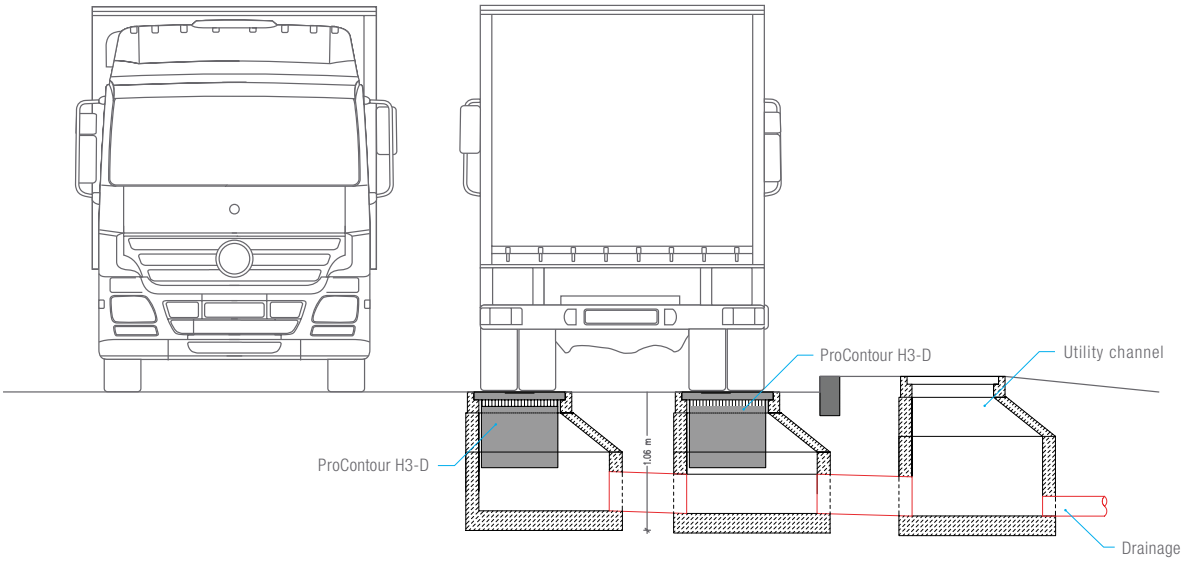
ProContour H3-D facto for the transport and forwarding of goods

Basically, the holder – in essence, the fleet manager – is responsible for the vehicle safety of his fleet. If he sends the driver on his way although he is aware of any damaged or worn-out tyres, he will be held responsible.

ProContour H3-D facto now allows the fleet manager permanent and automated screening of the condition of the tyres on his fleet. This gives him reliable documentation, decision-making security – and, hence, greater legal certainty.

What's more, automated tread measurement in place of manual measurement is by far the most cost-effective and resource-saving solution for him than requiring his driver regularly verbally or by written order to manually inspect the tread condition of the freight vehicle each time before starting a journey (Responsible Care).

Linked with the service system of the tyre dealer or external maintenance partners, ProContour H3-D facto provides a series of commercially beneficial aspects that have not been achievable to date for haulage contractors and freight carriers: Order and delivery chains can be planned better and speeded up.



ProContour H3-D facto for contractors as per the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) and the German law on the transportation of dangerous goods (GGBefG)

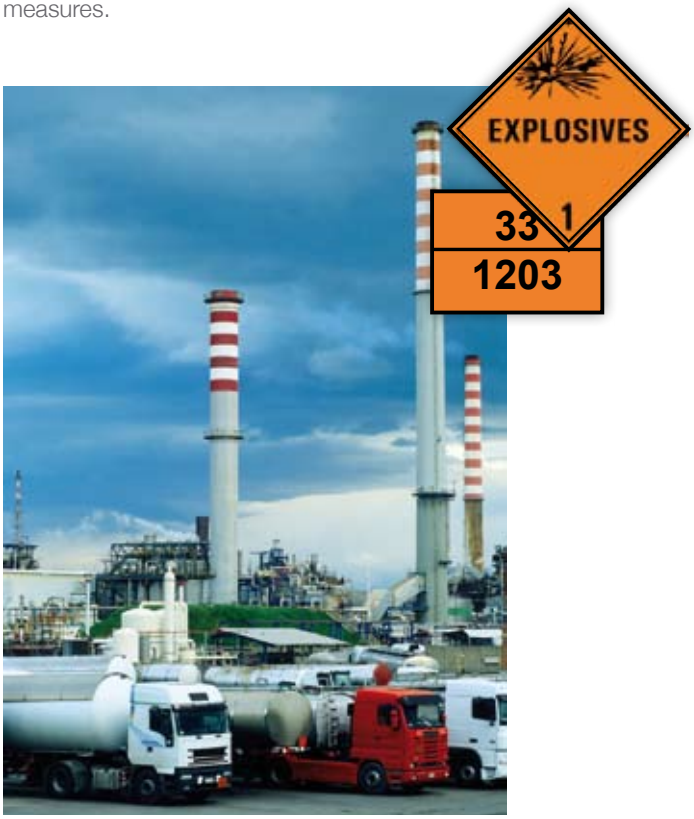
The transport of dangerous goods makes up a significant percentage of the goods traffic. According to a study by the Federal Office of Statistics[3], a total of 336 million tons dangerous goods were transported in Germany in 2004 alone, about half by road – where 2/3 of this is made up of tank haulage.

Responsibility for dangerous goods logistics does not, however, rest solely on the shoulders of the haulage contractor. In the event of damage, depending on transport and civil law regulations, the haulage contractor is also responsible for the freight customer with liabilities that are sometimes astronomical in level – not to mention the loss of image.

Not quite so dramatic but irritating and also time and cost intensive is the great amount of tyre damage which causes their lorries to break down far too often. They occupy a sorry second place in the list of breakdown causes of the ADAC TruckService[4].

With ProContour H3-D facto, those responsible for dangerous goods at freight customers can automatically and reliably ensure day and night that incoming vehicles have a sufficient depth of tread on their company site.

Have a positive effect on the 'human element of uncertainty' in the transport of dangerous goods safety system through prevention and appropriate measures.



[3] Source: Federal Office of Statistics, press release dated 22.03.06
The majority of the dangerous goods volume of 158 million tons is transported by road transport vehicles with a payload from 3.5 tons upwards - 93 % of the dangerous goods volume was transported back by road on German lorries, 7 % were transported by foreign lorries. (...)

[4] Tyre damage was the second most frequent cause of breakdowns in 2009. From January to December 2009, however, they increased again compared with the same period of the previous year and constitute 27.2 % of all commercial vehicle breakdowns. In 22 % of breakdowns, engine breakdowns prematurely ended the lorry driver's journey. These are the results of the latest lorry breakdown statistics of the ADAC TruckService based on a random sample of the 93,000 breakdowns handled throughout Europe in 2009.

ProContour H3-D facto:

Not only those who manufacture safe lorry tyres are active in the sense of greater tyre safety.

ProContour H3-D facto for the lorry tyre trade and service

Modern fleet management in the transport and forwarding of goods is not conceivable without modern service management of the tyre trade. Timely and regional service and ability to supply are, however, primarily dependent on being able to detect the need in good time, the available tyre stocks in the logistics chain as well as workshop capacities. Hence, service management becomes primarily information management.

Here, ProContour H3-D facto takes over process steps that have so far always been costly and manual to carry out – mostly by field service. Tyre condition reports can be generated and transferred online both on the company premises of the lorry fleet partner and on the workshop and service premises of the service partner.

Depending on the objective, the potential benefits here can be exploited in a number of different ways: From time savings to the saving of personnel resources, from the faster information chain up to the profit-optimised supply chain, ProContour H3-D facto provides a complete series of application-oriented advantages which can diagnose the lorry tyre life in good time, permanently and reliably through automated measurement and professional computer-aided monitoring, thereby extending it.

ProContour H3-D facto for the tyre industry

The maximum synthesis of those qualities that are demanded nowadays of high performance lorry tyres can be quickly summarised: Efficiency, standardised structure, ease of driving, design and acoustic comfort, just as safety under all operating conditions. And more importantly: As of 2012, legal regulations will come into force that stipulate tyres must be used in the initial equipment which reduce CO2 emissions through reduced rolling resistance.

Because of this, the lorry tyre of the future becomes a high technology product that is subject to continuous further development. But the determining factors in Research & Development are complex and must be fulfilled not just under laboratory conditions.

ProContour H3-D facto means that statistical series, field experiments and market research can now be realised in an automated and resource-saving way in flowing traffic, long-term tests with fleets provide conclusions on cross-border tread wear and changes under different road conditions.

Or ProContour H3-D facto is used for market research purposes and for assuring the analyses of potential. The industry defines the application purpose. ProContour provides the means.

ProContour H3-D facto:

For organisations that do not directly employ the system, it can however be used across systems.

ProContour H3-D facto for associations and institutions

Situated in the middle of Europe, the German Federal Republic is a transit country for European lorry traffic and its roads – if nothing else – are also the hub of foreign economic areas. The overall transport of goods on all traffic routes in Germany in 2007 alone rose by 4.8 percent to 4.4 billion tons. A growth that is borne by German roads and motorways - they carry 77 percent of transit goods transport[5].

A growth that must ensure free, fair, environmentally-compatible and, above all, safe competition at the European level. Associations, lobbying groups and institutions as a platform are requested to emphatically represent their members in the political forums.

Because greater road safety is not just a social postulate, it is also a competitive advantage to be used proactively. Greater tyre safety differentiates negligence from responsibility, poor tyre conditions are an indicator of a series of further vehicle deficiencies in the opinion of all European authorities and organisations involved with safety. Unchecked and not prosecuted, they detract from the level playing field just as much as the failure to observe driving and rest times.

Because of this, tread depth measurement systems from ProContour in the lorry tyre safety cycle are also an association instrument for enforcing fair competition. They separate the wheat from the chaff. Lorries in an unroadworthy condition, and especially with defective tyres, do not belong on public roads either in Germany or in other European countries.

[5] Source: Federal Office of Statistics dated 16.01.2008
The transport of goods and commodities in Germany between 1991 and 2005 has risen by 47 % to 565 billion. tkm (excluding pipeline transportation); according to calculations, in 2006 it was more than 600 billion tkm. Growth on the road was approx. 65 % (2005) or approx. 77 % (2006). Accordingly, the proportion of the road for the transport of goods and commodities has increased from 64 % (1991) to 72 % (2005 and 2006).

ProContour H3-D facto – a step towards "Vision Zero"

Every year around 500,000 people are injured on German roads, about a fifth of these are serious and around 5000 are fatal. Thus, the German Automobile Club (Verkehrsclub Deutschland e.V. (VCD) is demanding a radical rethink by those responsible for the traffic system:
Human life is the most valuable possession that needs to be protected in everyday road use, not the smoothest possible traffic flow. The VCD demands a Vision Zero – zero road deaths in Germany.

"Vision Zero is therefore not so much a mission statement in the actual sense, rather (as the DVR chairman writes in his argumentation for Vision Zero, dated 30th April, 2008) a safety philosophy, a humanistic concern."

The total macroeconomic costs through road traffic accidents for 2005 amount to 32.18 billion Euro. The injuries involved here amounted to 16.30 billion Euro - a proportion of 50.7%, the property damage was 15.88 billion Euro - a proportion of 49.3%. The human suffering cannot be quantified.

For this reason alone, it requires concerted and coordinated measures beyond individual political or economic interests. These measures are often complex and entail a greater acceptance of responsibility by all those who bear responsibility for the design of the road traffic system.

The "lorry tyre safety cycle" is only one step within the partial concept of vehicle safety. But within the target corridor, Vision Zero is economic, societal and humanly make more sense.

25 000
LIVES TO SAVE
European Road Safety Charter

ProContour H3-D facto:

The good old manual measurement process has had its day. The new yardstick is automated and digital.

Brief description of ProContour H3-D facto:

ProContour H3-D facto is an European-wide patented tyre depth measurement system for use in goods transportation. It was specially developed for tread depth measurements of slowly traversing lorries.

The modular construction allows insertion of one or more measuring heads in underground channels or inspection holes (one measuring head per inspection hole).

Technical characteristics of ProContour H3-D facto:

Tread depth, resolution:	0.05 mm
Air pressure measurement, resolution:	0.5 bar
Axle load, resolution:	100 kg / 1000 N
Traversal speed:	approx. 15 km/h (120 km/h*)
Mass per measuring head:	approx. 80 -120 kg
Measurement width **:	2 x 600 mm (600 mm per vehicle side)
Measurement width **:	4 x 450 mm (950 mm per vehicle side)
Measurement width **:	4 x 600 mm (1250 mm per vehicle side)
Power supply (for two measuring heads):	230 V / 10 A
Interface (standard version):	1 x Ethernet (1 Gbit)
Software interface:	CSV, XML, SQL, customer request
Operating system:	Windows Server 2003, Windows XP

* for high-speed systems
** for both speed ranges (15 km/h | 120 km/h)

Equipment options, such as:

- Display panel for indicating the measured tread depth
- Camera for recording the incoming and outgoing situation
- Camera for recording the vehicle and number plate (please observe national regulations)
- Printer
- Loading and insertion aid for the measuring heads
- Wear pattern as a software add-on
- Export interfaces for the measurement data

ProContour GmbH
Daimlerstraße 9-11
D - 79761 Waldshut-Tiengen

Tel +49 7741 91789 - 0
Fax +49 7741 91789 - 9

info@procontour.com
www.procontour.com