

PRESS INFORMATION

“Can't be done” is not an Option **Special-purpose Vehicle Construction –** **Customized and Made in Norway**

Langenbrettach/Germany, Agritechnica 2017: Norway. The first things that usually cross one's mind are solitary landscapes, fjords and a paradise for hikers and anglers.



Picture 1: Landscape

Nevertheless Norway has a flourishing economy and due to its enormous oil and gas reserves it is one of the wealthiest countries in the world.

In addition to the well-known oil and gas industry a lot of very dynamic medium-sized enterprises have been established.

The special-purpose vehicle manufacturer VANGS is one of these companies. The specialist from Inderøy offers customized solutions to make the road

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transport more efficient. Almost any vehicle is produced individually and according to the customers' requirements and combines Innovation as well as flexibility in one. The vehicles for special and heavy transportation are characterized by their low unladen weight and especially high strength.

The company was founded in 1948 as cartwright and farriery. Today, it's directed by the brothers Terje and Kjetil Vang – already in its 3rd generation. However, the success story has already begun even many years before with one of the first blacksmith shops of Vang's ancestors.

The initial small one-person company developed into an internationally operating company with more than 60 employees and 3000 sqm production halls today.



Picture 2: Kjetil Vang

The product portfolio includes conversions of truck chassis, truck superstructures and truck low semitrailers.

However, even in the solitude of Norway this is a highly competitive market, so that each company needs to secure its place in the niche with its own advantages.

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Customers of VANGS come with special requirements to the company that they hardly get realized anywhere else. This “customized” idea is a main expertise of VANGS.

“Can't be done is not an option“, Terje Vang, one of the managing directors says. “Our customers come to us with urgent and complex tasks. – To be able to realise these tasks we need a competent and like-minded supplier. With MOBIL ELEKTRONIK we have found such a partner“, Vang says.

Some of the products of VANGS are low bed semitrailer for special purpose transports with two, three or more axles.



Picture 3: VANGS low bed semitrailer

One most recent project is a semitrailer with three axles of which the last axle is the trailing axle equipped with an electro-hydraulic steering by MOBIL ELEKTRONIK.

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Rear axle steering made by MOBIL ELEKTRONIK

A conventional hydraulic displacement system was no option for the customer as well as for VANGS. "Too many disadvantages", says Terje Vang. Firstly the construction via master and slave cylinders on the fifth-wheel plate needs a lot of space and is heavy. Secondly the track adjustment performance of a semitrailer with displacement system is far from optimal.

The EHLA® Standard system by MOBIL ELEKTRONIK has advantages at this point, especially the quick track adjustment after cornering within seconds. It works in the usual way as closed control loop.

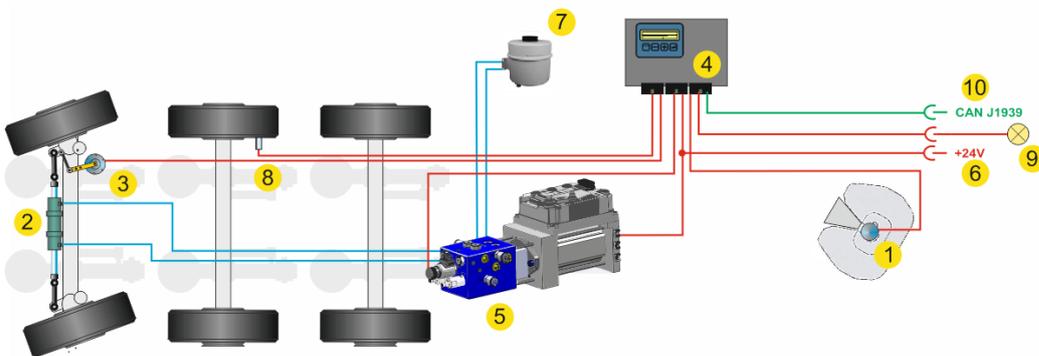


Figure 1: Figure: System diagram of EHLA® Semitrailer

The angle sensor in the fifth-wheel plate (1) determines the steering angle of the semitrailer and with it the cornering at the time.

The steering computer (4) calculates from it a setpoint for the rear axle and activates the hydraulic unit (5) that supplies the steering cylinder (2) with oil. An angle sensor (3) installed on a steering axle reports the steering angle back to the steering computer. Deviations from the setpoint are corrected automatically.

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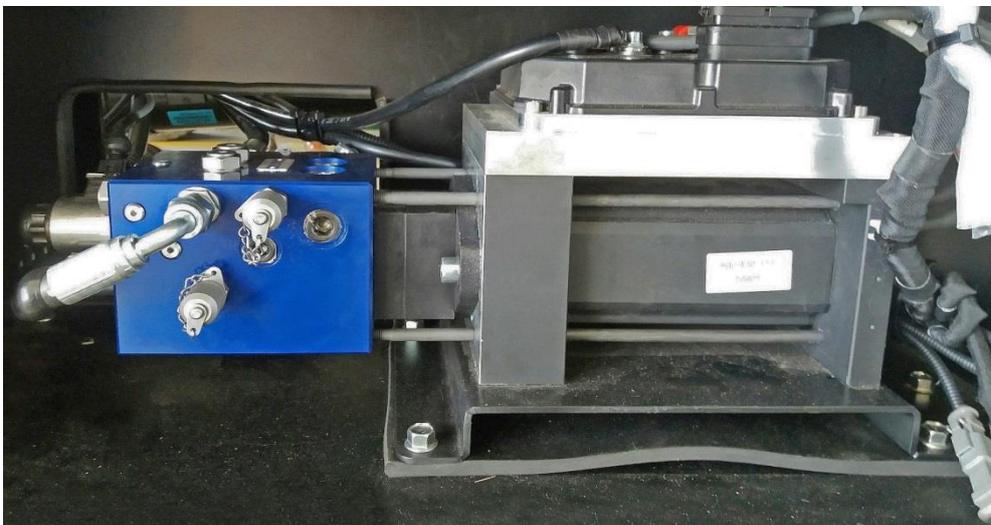
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Further benefits of an independent hydraulic supply

An important task for VANGS was that the trailer has got a hydraulic supply that is independent from the towing vehicle. In that way different towing vehicles can be used with the trailer, giving the freight forwarder more flexibility.

MOBIL ELEKTRONIK uses for this the newly developed *Power Pack*.



Picture 4 Power Pack

The hydraulic pump of the *Power Pack* is powered by a bi-directional synchronous motor. Depending on the motor rotation direction the one or the other side of the steering cylinder is supplied with oil.

That means that this motor is only supplied with power during active steering – an effective energy-saving concept. No energy is wasted for building up pressure when driving straight ahead for a longer time or with higher speeds and no steering occurs.

That is the big difference to conventional hydraulic supplies, where a constantly running hydraulic pump runs on a power take-off of the truck and wastes energy unnecessarily, even if the auxiliary steering does not need any oil.

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The assembly is much simpler as well. The *Power Pack* can be installed near the steered axle and connected to the steering cylinder with short tubes, thus avoiding long hydraulic hoses along the entire trailer length.

The integrated hydraulic unit of the *Power Pack* serves as control block for the steering cylinder, but also has an unblock valve. In case of a malfunction the latter switches the steered axle well-controlled force-free and it acts like a conventional tag axle.

The application area of the *Power Pack* is by no means limited to the EHLA® Standard steering system. Other steering systems like EHLA® OPTIMAL can of course also be realised with such an oil supply that is independent of the vehicle. In that case a centering cylinder and a pressure accumulator are necessary.

The *Power Pack* provides up to 230 bar and 13 l/min oil flow. With this a 10-ton axle with maximal load can be steered when stationary, for instance.

A further customer requirement was the integration of a remote control for manual steering of the trailer during manoeuvring.

MOBIL ELEKTRONIK provided the required inputs and outputs at the steering computer for it, so that the remote control supplied by VANG could easily be integrated.

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Further pictures:



Bild 5 VANGS low bed semitrailer



Bild 6: VANGS low bed semitrailer

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About MOBIL ELEKTRONIK

MOBIL ELEKTRONIK develops and produces complex steering systems for well-known manufacturers of mobile machines, commercial and special-purpose vehicles worldwide for 45 years now. The expanding family-owned high-tech company has more than 100 highly qualified employees.

Through a passion for innovation, commitment and creativity the expert from Langenbeutingen sets standards. As regards diversity and know-how MOBIL ELEKTRONIK is pioneer and global market leader for electronic steering systems (steer-by-wire).

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