

## Terberg electric truck uses Allison transmission to maximize productivity, launch with GCW up to 65 tons

*Torque converter enables SCHERM Group's 65-ton terminal tractor to achieve maximum speed as quickly as possible, in order to meet the tight delivery schedule*

**MUNICH** – For nearly two years, SCHERM Group has used a 100-percent electric Terberg YT202-EV terminal tractor with an Allison fully automatic transmission to efficiently deliver materials to the local BMW Group plant.

"The electric truck has proved itself in city distribution and the just-in-time delivery for BMW is working fluently," said Ulf Frenzel, fleet manager for SCHERM Group. "The Allison transmission makes it possible to specifically use the power of the electric motor in the best manner. And the e-truck can be maneuvered easily and is extremely easy to drive."

The fully-electric tractor is equipped with a three-phase synchronous motor (614 V) with a maximum power rating of 138 kW (188 hp) and a fully automatic Allison 3000 Series™ transmission. The Allison Automatic is the key to the driveline: the truck has to launch with a gross combination weight (GCW) of up to 65 tons and achieve maximum speed as quickly as possible to meet the tight delivery schedule. This is made possible by the transmission's torque converter that multiplies engine torque during start-up and acceleration.

Additionally, the Allison transmission eliminates power interrupts for increased productivity – even with a smaller engine. Without the Allison, a direct drive with a larger and significantly more expensive engine would have been necessary. The transmission's Power Take-Off (PTO) provision is used to drive the hydraulic pump, which saves an additional electric generator.

"The Allison transmission proves its reliability and ease of use in daily operation" said Frenzel. "In addition, we have shorter maintenance downtime than with a conventional diesel vehicle, better productivity and therefore we are much more efficient."

The 65-ton electric vehicle commutes in two-shift operation eight times daily, five days a week, between the BMW plant in Munich and the SCHERM logistics center which is 3 km away. Since it was put into service in 2015, the vehicle has completed over 3,000 tours equal to approximately 17,000 km. Over the last two years, more than 8,000 liters of diesel have been saved – equivalent to 22 tons of carbon dioxide.

"We are really satisfied with the e-truck," said Frenzel. "We wanted to prove that electric mobility also works in freight transport, and we achieved our goal."

Following SCHERM's success, Elflein Spedition & Transport also began using a similar Allison-equipped electric truck for short-distance transports to the BMW Group plant in Leipzig in November 2016. Because of a higher annual driving performance compared with the vehicle in Munich, carbon dioxide savings of up to 21 tons are possible in Leipzig each year.

**Terberg terminal tractor YT202-EV with Allison 3000 Series™ fully automatic transmission**

|                                 |                                                                             |
|---------------------------------|-----------------------------------------------------------------------------|
| <b>Engine</b>                   | Siemens liquid-cooled, 3-phase synchronous motor                            |
| <b>Power / Torque</b>           | 138 kW (188 hp), peak torque of 720 Nm                                      |
| <b>Transmission</b>             | Fully automatic Allison 3000 Series™                                        |
| <b>Battery Packs</b>            | Capacity: 112/169 kWh<br>Technology: Lithium ion magnesium phosphate (LFMP) |
| <b>Wheelbase</b>                | 3400 mm                                                                     |
| <b>Unladen Weight</b>           | 10,000 kg                                                                   |
| <b>Gross Combination Weight</b> | 65,000 kg                                                                   |
| <b>Maximum Speed</b>            | 45 kph                                                                      |

**About Allison Transmission**

Allison Transmission (NYSE: ALSN) is the world's largest manufacturer of fully automatic transmissions for medium- and heavy-duty commercial vehicles and is a leader in hybrid-propulsion systems for city buses. Allison transmissions are used in a variety of applications including refuse, construction, fire, distribution, bus, motorhomes, defense and energy. Founded in 1915, the company is headquartered in Indianapolis, Indiana, USA and employs approximately 2,600 people worldwide. With a market presence in more than 80 countries, Allison has regional headquarters in the Netherlands, China and Brazil with manufacturing facilities in the U.S., Hungary and India. Allison also has approximately 1,400 independent distributor and dealer locations worldwide. For more information, visit [allisontransmission.com](http://allisontransmission.com).

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**Images (for editorial use only)**

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|  <p>© Allison Transmission</p> | <p>The Allison 3000 Series™ fully automatic transmission features a torque converter that multiples engine torque during start-up and acceleration.</p> |
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|  <p>© SCHERM Holding &amp; Verwaltungs GmbH</p> | <p>For nearly two years, SCHERM Group has used a 100-percent electric Terberg YT202-EV terminal tractor with an Allison fully automatic transmission to efficiently deliver materials to the local BMW Group plant.</p>                                                                                                                         |
|  <p>© SCHERM Holding &amp; Verwaltungs GmbH</p> | <p>The 65-ton electric Terberg commutes in a two-shift operation eight times daily, five days a week, between the BMW plant in Munich and the SCHERM logistics center which is 3 km away.</p>                                                                                                                                                   |
|  <p>© BMW Group</p>                           | <p>Launch of the electric truck at the BMW Group plant Leipzig in November 2016.</p> <p>From left to right: Rüdiger Elflein, Managing Director Elflein Spedition &amp; Transport GmbH; Martin Dulig, Saxonian State Minister for Economy, Labor and Transport; Markus Grüneisl, Head of Logistics and Production Control BMW Group Leipzig.</p> |