

Underground mining: Knauf Gips KG changes tractor fleet to Mercedes Zetros with Allison fully automatic transmissions

Twenty-two percent lower fuel consumption and increased productivity convinced Knauf Gips KG, a world leader in building material production, to switch to three two-axle Zetros 1833 4x4 tractors with Allison 3000 Series™ fully automatic transmissions for the transport of raw gypsum stone in the Hüttenheim mine

HÜTTENHEIM, Germany – Heavy loads, narrow curves, rugged routes, constant starting and stopping – Knauf Gips KG recognized that towing tractors with manual transmissions had reach the limits of their capabilities in the Hüttenheim mine and decided a change was necessary to two-axle Zetros 1833 4x4 tractors with Allison 3000 Series™ fully automatic transmissions.

In November 2012, the first Zetros vehicle replaced an agricultural tractor which was previously used in the mine for 15 years. The exceptionally robust and economic performance of the new vehicle led Knauf to replace two additional vehicles with Zetros trailer trucks in 2013 and 2014.

Knauf regularly recorded fuel consumption of the first new Zetros after it was put into operation and compared it to that of previous vehicles. The impressive result: The Allison-equipped Zetros consumed 22 percent less fuel than the agricultural towing tractors with manual transmissions.

Norbert Feilner, Knauf's workshop and fleet manager, is thrilled. "Compared to the old towing tractors, the Zetros trucks mean three big steps forward. Allison transmissions always choose the most favorable gear shifting points," he said.

In the Hüttenheim mine in Lower Franconia, the Zetros vehicles transport the mined raw gypsum through the narrow, dark labyrinth inside the mountain to the crusher. This means moving and controlling a total towing weight of 38 tons. Every day, each truck covers approximately 200 kilometres at a maximum speed of 30 km/h.

"The towing trucks have to tow an enormous weight, while continuously starting and stopping. Thus, frequent clutch replacements would be necessary, but are completely eliminated with Allison fully automatic transmissions. The Allison transmissions have higher durability and require less maintenance than manual or automated manual transmissions; they offer

drivers a more relaxed work environment by saving them the effort of over 500 manual gear shift operations daily,” Feilner said.

The torque converter ensures a direct connection between engine and transmission, outstanding acceleration during starts, and direct mechanical traction at higher speeds. The dampening effect of the torque converter protects the driveline against wear and tear, while Allison’s 5th Generation electronic controls provide optimal shifting point to avoid incorrect and inefficient driver shifting.

Before operating in the gypsum mine, the Zetros vehicles had to undergo only small modifications. The intake manifolds were relocated to behind the driver’s cab, as they previously protruded above the vehicle’s roof, and the rear mirrors were replaced with rear-view cameras. The swan neck trailers are Knauf’s construction and provide high stability off-road.

Knauf was looking for an economical and comfortable vehicle model. It required good suspension, a maximum height of 2.90 meters because of low overhead clearances and an automatic transmission because of difficult driving conditions. The Allison-equipped Zetros tractor met all of these needs and is expected to run for nine years within the Hüttenheim mine.

Mercedes Zetros 1833 4x4 gypsum transporter

Engine	R6, LA, 240 kW, 2200 rpm, OM 926 LA, Euro 3/Euro5
Cylinder/Capacity	7,200 cm ³
Engine output	240 kW (326 hp)
Torque (maximum output)	1.300 Nm at 1,200 to 1,600 rpm
Transmission	Six-speed Allison fully automatic transmission 3000R SP
Transfer box gearing	MB VG 1700-3W 2-speed
Length x Width x Height	approx. 6.35 m x 2.52 m x 2.89 m
Wheel base	3.90 m
Turning radius	approx. 20 m
Angle of slope	approx. 31 degrees
Unladen weight	7,720 kg
Gross vehicle weight	18,000 kg
Trailer	Knauf swan neck trailer

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 2,700 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 www.allisontransmission.com.

About Knauf Gips KG

Knauf Gips KG, based in Iphofen, Bavaria, is part of the Knauf Group with 150 production sites worldwide and one of the leading producers of building material, employing 24,500 people in over 60 countries. Knauf operates about 53 quarries and 12 mines in 23 different countries and quarries 5 million tons of raw gypsum stone per year. The Knauf Group produces modern drywall construction systems, gypsum plasters and equipment, thermal insulation composite systems, paints, floor screeds and floor systems, and machines and tools for the use of these products, as well as insulation materials.

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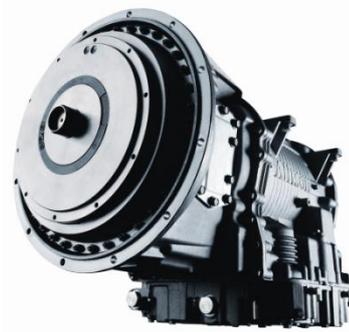
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In the Hüttenheim mine in Lower Franconia, the Zetros vehicles transport the mined raw gypsum through the narrow, dark labyrinth inside the mountain to the crusher.



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