

Mercedes-Benz Arocs as carrier vehicle for suction excavator:

Mercedes-Benz Arocs 3253 L 8x4: XXL vacuum cleaner

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- Hölzl Agrosystem e.K. uses suction excavator on Arocs platform
- Mighty power take-off for impressive suction performance
- OM 471 Euro VI with 390 kW (530 hp) proves rugged and reliable engine in challenging stationary operation
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Machine operator Wolfgang Stenger stands next to his vibrant traffic yellow Mercedes-Benz Arocs 3253 L 8x4, briefly readjusts the ear defenders on his helmet and starts the engine, with a casual turn of the wrist, by pressing a button on the remote control. Another press of a button, the 32-tonner draws a deep and audible breath, vibrates briefly and the mighty body begins to roar as if it were a giant vacuum cleaner. It doesn't just sound like one, it actually is one. For the angular four-axle truck is a so-called suction excavator and works on the same principle as a vacuum cleaner - albeit a few sizes larger and with considerably more power.

Owned by Hölzl Agrosystem e.K. from Schonstett in the district of Rosenheim, the highly innovative special-purpose vehicle for civil engineering duties is only two and a half months old and currently employed on a building site at the Bavarian regional parliament in Munich. At first sight, it isn't clear what exactly the machine, stationed in the middle of the imposing approach to the historic building, is doing. That doesn't become apparent until one takes a closer look at the rear of the machine and follows the suction tube. A hydraulically controlled carrier arm guides the tube in a high arc directly down into a pit next to the foundation of the facade. There, one and a half floors down behind the thick masonry wall, construction workers are excavating the cellar of the parliament building before installing new utilities.

Mighty power take-off guarantees impressive suction performance

Without the suction excavator, the workers would be left with the laborious task of transporting rubble and earth out of the pit by wheelbarrow. As it is, a mini-excavator just scoops the material in front of the end of

the suction tube while the strong airflow sucks everything, be it thick red chunks of brick or fine crumbs of limestone, up into the eight cubic metre collection container on the Arocs. With a circulation of up to 44 000 m³ of air per hour and a maximum vacuum of just under 0.45 bar, the conveying capacity is quite considerable. The container is full within a very short time.

The impressive suction performance comes courtesy of two special high-power fans with up to 4100 rpm, which are installed by the bodybuilder, Reschwitzer Saugbagger Produktions GmbH (RSP), in its latest model, the ESE 8 RD 8000. According to RSP, the use of such powerful components is possible because, particularly in the Arocs, the power take-off, which drives the fans, can be started directly by slowly engaging the drive clutch. This means that, when the fans start, this puts a far lower load on the drive engine, which results in an increased service life all-round. "Apart from that, our suction excavator is the first of this all-new model series and, with the Arocs, RSP and we have consciously opted for a mature and reliable carrier vehicle," says contractor Josef Hölzl, who owns a total of five suction excavators, explaining why he chose the Arocs.

OM 471 with 390 kW (530 hp) proves rugged and reliable Euro VI engine in challenging stationary operation

Reliability is once again the keyword as far as the engine of the Arocs is concerned. The uprated OM 471 Euro VI six-cylinder in-line engine, now with 390 kW (530 hp), has its work cut out, especially when on continuous suction duty, as in the present task. Although Hölzl serves the entire European market, the 12.8-litre engine spends most of its working life not on the road, but in stationary operation. It's striking how quietly the Arocs goes about its business. Namely, the current deafening sound is not from the vehicle, but from the fans, the "wind noise" of the air as it flows through the body, and from the rubble as it clatters into the metal innards.

Wolfgang Stenger again presses the buttons on his remote control and switches off the body, at which point the noise level drops until all that can be heard is the rumble of the Arocs as it idles. Emptying the collected material does not involve as much "fuss". That's because one of the highlights of the ESE 8 is the all-new tipping mechanism. This involves the machine operator moving the vehicle just a few metres forwards, where the ground is flatter, and then extending four heavy computer-controlled supports out of the chassis, which lift the Arocs out of its suspension while automatically levelling it. The centrally positioned container is then hydraulically raised up to a tipping height of 2.5 metres and tips its load to either left or right, as needed. The contents thus land directly in the skip on the truck parked next to the suction excavator. Exceptionally elegant by the standards of a 32-tonner, and, above all, flexible. Previously, emptying was possible only by the driver

and not at high elevations. Afterwards, the driver returns the mega vacuum cleaner to the original position, reconnects the suction tube and resumes this alternative method of "clearing out the cellar".

Although actually driving the Arocs is clearly the lesser part of Wolfgang Stenger's job, he is nonetheless impressed by his new workmate also on that front: "Quiet in operation, smooth and very pleasant. With its automated PowerShift 3 transmission, it's almost like a car to drive. Another big advantage, of course, is the manoeuvrability of the Arocs with its steered fourth axle, especially in the confined conditions of a building site away from roads of normal width." Both the driver and his boss also like the comfortable interior of the StreamSpace cab. The long list of features includes comfort seats, automatic air conditioning, refrigerator and deluxe bed. "Although our operators do not spend the night in the vehicle, I'm very pleased that the off-road variant is able to offer them the same comforts and amenities as a long-haul truck. That's important to me personally," stresses Josef Hölzl, while Wolfgang Stenger adds: "So far, I've done only slightly over 4500 kilometres in the Arocs, but the initial impression is excellent."

Mercedes-Benz supports bodybuilders with comprehensive service

In addition to its new tipping principle, the suction excavator boasts a large number of other technical features offering the operator maximum efficiency and safety. These include automated, computer-aided control options for the articulated-tube carrier and an electronic on-board information system on which it is possible to monitor every operating state. The specification also includes safety systems, such as for locking the working height, for use in tunnels or below overhead lines, as well as sensors for detecting combustible gases and hydrogen in the ambient air that is sucked in. To enable the connection of such sophisticated electronic systems, Mercedes-Benz offers technical support and optimal service to highly specialised external bodybuilders in the form of access to extensive documentation, well-developed interfaces on the base vehicle and the Star Diagnosis parametrization program.

Source: Daimler Communications