R 9100

Generation 8

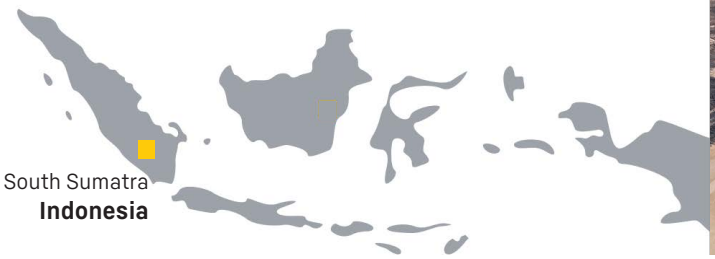
Job report:
Mining excavator

The Liebherr R 9100 G8 excavator
at Madhani mine, Indonesia

LIEBHERR

Mining Excavator

Situation



PT Madhani Talatah Nusantara (Madhani) is a mining contractor based in Jakarta, Indonesia. Since 2016, Madhani has been responsible for overburden removal and coal extraction at the Tanjung Enim coal mine in the South Sumatra region of Indonesia. Tanjung Enim is a large open-cast operation with four coal seams. Since operations began in 1919, 507 million tonnes have already been mined, and reserves are estimated at 245 million tonnes. The extracted coal is used to supply the MT Sumsel-8 steam power plant, which is a 2 x 660 MW plant and requires up to 5.4 million tonnes of coal per year to supply electricity for the Sumatran electricity system.

The business relationship between Liebherr Mining and Madhani began in 1996, when an R 994 mining excavator was delivered to Sesayap mine in Indonesia's North Kalimantan region. Since then, Madhani has acquired no fewer than 29 Liebherr mining excavators of various classes – including the R 9100, R 9150, R 9200 and R 9250 models – across several mines in Indonesia. The Tanjung Enim site alone features seven machines, including four R 9100 G6s, one R 9100 G8 and two R 9150 G6s.

The R 9100 Generation 8

The new R 9100 Generation 8 excavator replaces the R 9100 G6 in the 100-tonne class within Liebherr's portfolio. As a Generation 8 machine, the R 9100 G8 benefits from the latest Liebherr Mining innovations. Unlike the previous generation, this new machine features Liebherr's proprietary engine and hydraulics management systems, known as Liebherr Power Efficiency. These systems have proven capable of reducing the fuel consumption of Liebherr's Generation 8 excavators by up to 20 %. Such significant fuel savings can have a dramatic effect on the owning and operating costs of a 100-tonne excavator such as this one, as fuel costs for these machines can make up as much as 40 % of these expenses. Generation 8 technology also supports the latest IoMine solutions from Liebherr Mining, a suite of data-driven products aimed to support customers with equipment performance, asset health, connectivity and maintenance.

Madhani's R 9100 G8 specifications

Operating weight
112 tonnes

Motor output
565 kW / 757 HP

Bucket capacity
8 m³

Max. digging force (ISO 6015)
435 kN/97,795 lbf

Max. breakout force (ISO 6015)
560 kN / 125,893 lbf

Max. oil flow
1,725 l/min / 456 gpm

Onsite performance

Study conditions

As part of the partnership agreement between Madhani and Liebherr Mining, Madhani operated an R 9100 G8 unit during the machine's pre-series field validation process, which took place between September 2024 and December 2025. Throughout the operation of this pre-series unit, Madhani provided Liebherr with valuable insight into the excavator's overall performance.

During its first 16 months of operation, the R 9100 G8 was used to remove overburden and load the material into 100-tonne mining trucks at Tanjung Enim mine. The excavator loaded these trucks in nine passes with an 8.0 m^3 bucket at a material density of 1.65 t/m^3 density.

Availability rate

From September 2024 to December 2025, the R 9100 G8 reached an average of 92 % availability, which exceeded the 90 % target set by Madhani.

24/7

92 %
availability rate

448
bcm moved per hour

Production

In its first 16 months of operation, Madhani reported that the R 9100 G8 achieved an average production of 448 bcm per hour (923 tonnes per hour). In the same period, the R 9100 G8 moved 14 % more material per hour than competitor 100-tonne excavators on site.

Fuel consumption

Madhani reported an average fuel consumption of 68 litres per hour during the excavator's first 16 months of operation. This was 23 % less than the average amount of fuel consumed by the four R 9100 G6 excavators and the competitor 100-tonne excavators that were also at Tanjung Enim during this time.

23 %
less fuel burned per hour

Production test

Liebherr Mining conducted a production study in September 2025 at Tanjung Enim to measure the instantaneous production of the new R 9100 G8. Throughout the study, Liebherr's engineers ensured optimal truck fleet match and loading conditions. The R 9100 G8 worked on a blasted bench of overburden, equipped with the 8.0 m³ bucket, loading a fleet of 100-tonne class trucks.

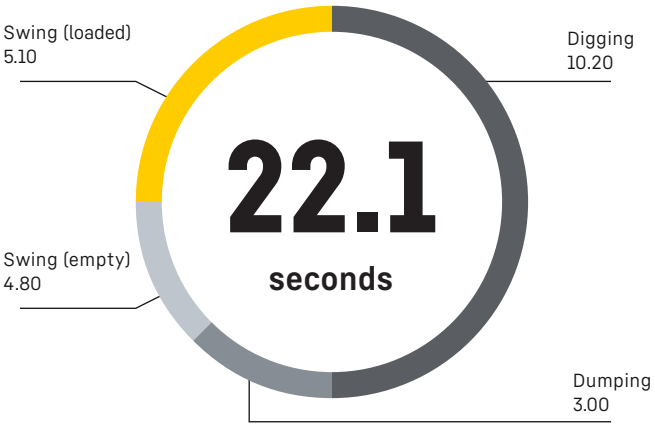
Study results

Test duration	53.2 minutes
Average load per truck	49.5 bcm / 102.2 tonnes
Average time between trucks	45.0 seconds
Average excavator cycle time	22.1 seconds
Average fuel consumption	85.7 litres per hour
Measured production	771.2 bcm per hour (1,589 tonnes per hour)
Fuel efficiency ratio	9.0 bcm / litre

Productivity

The instantaneous productivity achieved by the R 9100 G8 during this study was 771.2 bcm per hour (1,589 tonnes per hour), 29 % more than the 600 bcm per hour target set by Madhani in the partnership agreement. This achievement was made possible by the combination of the R 9100 G8's fast cycle times (22.1 seconds on average) and good exchange times between trucks (45 seconds on average).

771.2 bcm
per hour



Cycle time

The R 9100 G8's average cycle time of 22.1 seconds was possible thanks to its electro-hydraulic joystick control, closed-loop swing circuit and Liebherr Power Efficiency systems.

Fuel efficiency
9 bcm
per litre

Like the other Generation 8 excavators, the R 9100 G8 comes with the Liebherr Power Efficiency systems (Liebherr's proprietary engine and hydraulics management systems) as standard. Liebherr Power Efficiency significantly reduces fuel consumption and, consequently, greenhouse gas emissions. This makes the R 9100 G8 a more efficient and optimised machine than the R 9100 G6, which was already one of the most efficient machines in its class.

During its instantaneous production test, the R 9100 G8 consumed 85.7 litres of fuel per hour and achieved an excellent fuel efficiency ratio of 9 bcm per litre.

R 9100 G6 vs R 9100 G8: what's new?

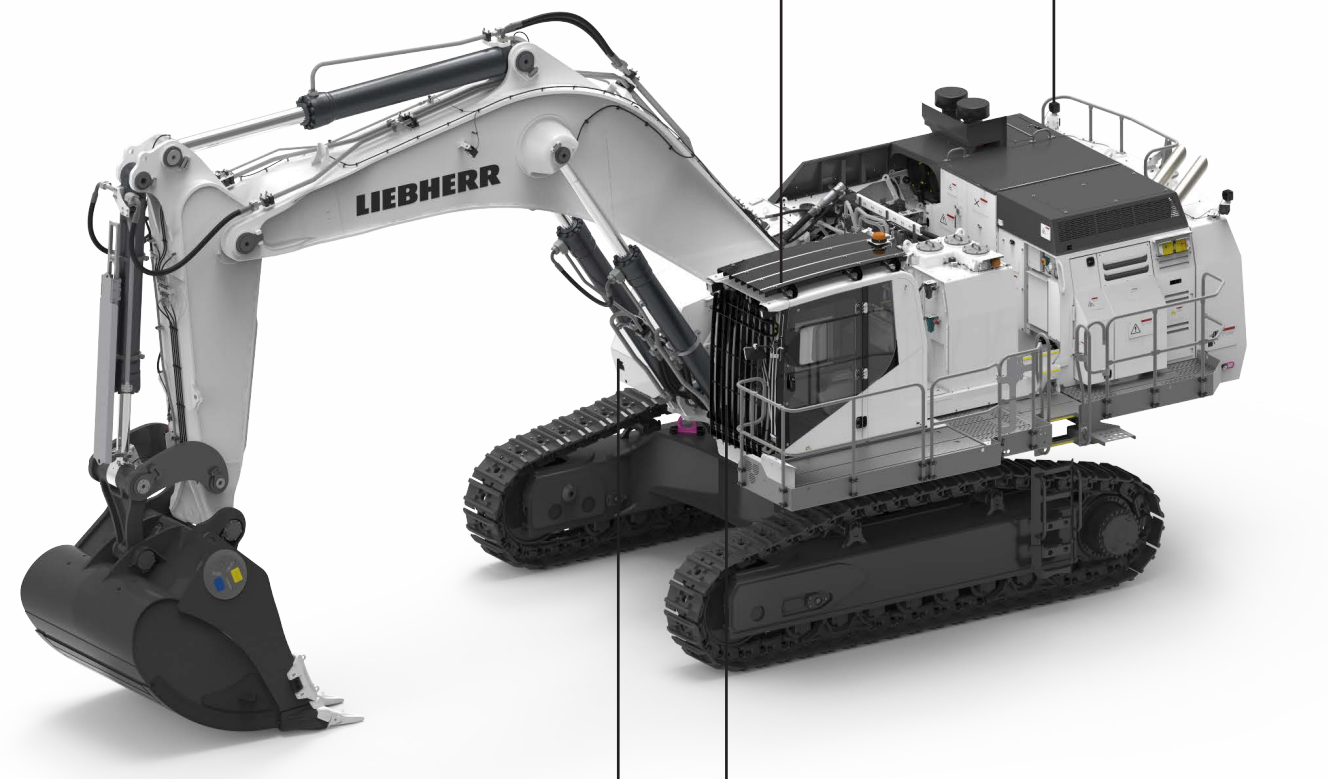
The new R 9100 G8 retains the DNA of its predecessor, the R 9100 G6: quick and easy maintenance and high digging forces. For the Generation 8 machine, Liebherr engineers have gone even further, combining innovation and intelligence to redefine efficiency. The R 9100 G8 brings with it a range of enhancements, which are presented below.

Minimised downtime

Liebherr's engineering teams have redesigned the greasing system and repositioned the tank and pumps to improve reliability and maintenance. The grease change intervals have been extended to 250 hours to minimise machine downtime.

Zero blind spots

The optional Skyview vision system offers 360° visibility around the machine in a single image thanks to its four cameras – meaning zero blind spots from the operator's seat for everyone's safety.



Exceptional fuel savings

The R 9100 G8 is equipped with the patented Liebherr Power Efficiency systems, which provide savings of up to 100,000 litres of fuel each year, compared to the previous generation.

Ready for IoMine

The new R 9100 G8 combines intelligent assistance and real-time data sharing to deliver exceptional operational efficiency thanks to its compatibility with IoMine, Liebherr's portfolio of technology solutions. Customers can access licences for Operational Excellence, Operational Analytics, Operational Compliance, Truck Loading Assistant, Data View and Bucket Filling Assistant.

Opportunities

The impressive performance of this R 9100 G8 exceeded Madhani's expectations in terms of fuel consumption, productivity and availability. Following the completion of the pre-series field validation process, Madhani acquired the machine.

Watch the video!

Scan to hear directly from site and see Madhani's R 9100 G8 in action.

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