

Hydraulic Excavator

R 984 C
Litronic®

Job Report

R 984 C Litronic rips and loads up to 6,000 t of limestone per day for Conch in China.



LIEBHERR

Situation

On September 1st, 1997, China Anhui Conch Cement Company Limited ("Conch Cement") was exclusively initiated and established by Anhui Conch Holdings Company Limited with the cement assets of its subsidiaries the Ningguo Cement Plant and the Baimashan Cement Plant.

The business scope of Conch Cement covers the manufacture and sale of cement and clinker. Conch Cement has been the number one cement and clinker manufacturer and seller in China for 10 years, and is currently the largest in Asia.

By the end of 2006, Conch Cement possessed more than 50 branches and one associated company, with total assets of 22.3 billion RMB (approx 2 billion Euros). Furthermore, Conch Cement had built up 17 clinker plants and 21 cement grinding mills in 9 provinces and municipalities in eastern and southern China. It has 36 clinker production lines with the capacity of 2,000-10,000 t per day and a total capacity of 70,000,000 t. Conch Cement also has three new dry-process clinker production lines with a capacity of 10,000 t per day, featuring the most advanced technology in the world cement industry.

Conch Cement possesses abundant and high-quality limestone reserves in eastern and southern China, which are low in alkalinity, high in CaCO₃ and are good materials for manufacturing high-quality low-alkali cement. All Conch Cement production lines use new dry processes, which are equipped with advanced machinery and equipment, controlled automatically throughout the process from quarry to shipyard, and certified and inspected according to ISO 9001.

In June, 2007, Conch Cement and Liebherr established a partnership, signing a strategic cooperation agreement that included a contract for five Liebherr R 984 C large-bucket crawler excavators in Wuhu, where the Conch Cement head office is located.



Assignment Report

In order to improve working efficiency and meet the demands of its new cement production lines, Conch decided to purchase additional equipment and finally chose the Liebherr R 984 C hydraulic crawler excavators, with a bucket size of 7.7 m³.

One of Conch's cement factories in Guangxi Fusui has a production line that can produce 5,000 t of clinker per day, whose cement output reached 2 million tons in 2007. It uses the reliable and efficient R 984 C as the main loading tool at the limestone mining site.

All the five excavators are utilized for ripping stone layers and loading limestone rubble into the trucks after blasting, with a material density of 1.6-1.8 t/m³ and ambient temperature range from -5 °C to 40 °C.





Solution

Conch Cement previously used other large hydraulic excavators for loading and mining. For its new investment, the company compared the world's four leading manufacturers of construction equipment. After the comparison, Conch made its purchase decision based on the Liebherr machine's higher efficiency, reliability, stable quality and positive performance at other sites.

According to the contract, these five R 984 C will be delivered to five different sites belonging to Conch Cement. Of these five machines, three of them have been dispatched to Anhui Digang, Chizhou and Guangxi Fusui since the end of February 2008. Another R 984 C for the Guangxi Xinan production line of Conch Cement arrived at the limestone mining site in early May 2008. The last one was delivered to the Hunan Shuangfeng site at the end of May 2008.

So far, the machine at Anhui Digang has been working for more than 730 hours, and the R 984 C in Anhui Chizhou has been working for approximately 330 hours. The other one in Guangxi Fusui has also been working for almost 500 hours.

In addition, the cab of the machine has been raised by 600 mm to improve the driver's view.

Performance

At present, there are three R 984 C machines in operation at the Conch sites. Conch uses double shifts with 16 working hours per day. The Liebherr R 984 C loads up to 6,000 t of limestone per day, for up to 4,000 t of clinker per day.

The machine has an operating weight of 123 t and is equipped with a turbocharged Cummins diesel engine characterized by outstanding power and reduced emissions which conform to current and future emissions requirements in both China and Europe. The sturdy engine develops its rated output of 504 kW (685 hp) at the low engine speed of 1,800 rpm. The powerful rated output of the engine provides high crowd and breakout force, which ensure maximum efficiency and fulfillment of long-term heavy-duty work.

The R 984 C bucket excavator is equipped with a 5.80 m bucket boom, a 4.35 m stick and a bottom dump bucket with a capacity of 7.7 m³. The maximum crowd and breakout force are 750 kN and 550 kN respectively. These attachments provide a high bucket filling ratio.

The hydraulic pump has a pressure compensation function and can automatically optimize oil flow. In addition, the machine is also equipped with a Lincoln "Centromatic" automatic lubrication system for attachment and a swing ring, which is more convenient for lubrication and especially easy for maintenance.

An important feature of the R 984 C excavator is the spacious Liebherr driver's cab, which provides significantly greater freedom of movement. With the raised cab, the driver always has a perfect view of the work area when digging, loading and unloading material. The ergonomically designed seat in the cab can be adjusted to match the driver's weight. Shock-absorbing suspension and a 6-way adjustable operator's seat with mountable headrest further optimize the working environment.

In order to support the project, Liebherr France provided direct manufacturer assistance in the installation, debugging and maintenance of the equipment. Technical and service engineers from the factory in Colmar, France, that produces the R 984 C helped local Chinese engineers on site.

In addition, based on feedbacks from Conch, they are satisfied with the reliability and operating efficiency of the machines. Furthermore, timely and efficient equipment service is especially impressive.



Technical data

R 984 C Litronic

Operating weight: _____ 123 t

Engine: _____ Cummins-QSK-19C 750

Engine output

Per ISO 9249: _____ 523 kW (710 hp) at 2,100 rpm

_____ 504 kW (685 hp) at 1,800 rpm

Equipment

Bucket attachment

Bucket boom: Length _____ 5.80 m

Bucket stick Length _____ 4.35 m

Bottom dump bucket

Capacity (SAE): _____ 7.7 m³

Cutting width: _____ 2,900 mm

Bucket opening width T: _____ 1,900 mm

Max. crowd force (SAE): _____ 750 kN / 76.5 t

Max. crowd force

at ground level (SAE): _____ 550 kN / 56.1 t

Max. breakout force (SAE): _____ 550 kN / 56.1 t

Max. dump height: _____ 8.90 m

Max. crowd length: _____ 4.50 m

Max. reach at ground level: _____ 10.80 m