

Job Report

R 954 B V Litronic®
R 974 B VH-HD Litronic®

Demolition of the C&A Department Store in Berlin. Two Liebherr Hydraulic Excavator prove their powerful Performance.



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Situation

In Berlin, the new German capital, lively construction activities are prevalent. Only steps away from the busy boulevard, the Kurfürstendamm, at the corner of Joachimstaler- and Augsburger Straße, the former C&A department store will be demolished in order to make room for a new hotel. The new C&A department store is already relocated not far away, directly at the Kurfürstendamm.

Assignment Report

The building complex to be demolished covers an area of 4000 m² and consists of 5 floors plus an additional steel structure with a total height of 31 m and an underground garage. The three upper floors in building 1 are made as a steel framework and in building 2 as a concrete structure. The mighty main girders through all floors are 1.3 m wide and 1.0 m high. A total of 80,000 m³ of enclosed space have to be demolished.

Since the traffic continues to flow in both streets, the demolition work has to be performed in extreme tight quarters and under strict safety measures. Under no circumstances can the job activities disrupt the traffic flow. Particularly the Joachimstaler Straße is a major through road towards the "Bahnhof Zoo" and cannot be closed. Additionally, underneath this street is the oldest subway tunnel in Berlin that is listed as a historic monument and consequently the demolition cannot be approached from this side.

The contractor "RWG I Bauschutt Recycling GmbH", a privately held company in Berlin that is specialized in demolition and recycling in the region of Berlin and Brandenburg, was awarded the contract for this advanced and technically demanding project. The RWG I is part of the Garbe Group with four business segments and 230 employees. Work started on July 1st and in only three month the entire complex including the foundations had to be demolished, removed and recycled. The assignment and the tight time frame put high demands on people and machinery. Therefore, the most capable and safe demolition equipment with a versatile attachment line had to be available in order to manage all jobs in the shortest possible time.

Solution

The good experiences, which the Garbe Group enjoyed with Liebherr as a dependable partner in large demolition projects, go back to the year 1995. In those days, the building of the Ministry of External Affairs of the former East German Government in East Berlin was demolished with two newly acquired Liebherr demolition excavators R 954 B V Litronic equipped with a 25.0 m long-front attachment. The Liebherr service branch in Berlin provided solid support that helped in the purchase decision of the demolition excavator R 954 B V Litronic and with the lease of the currently largest demolition excavator offered by Liebherr, the R 974 B VH-HD Litronic. The machine is currently the only demolition excavator in this category with a hydraulically adjustable undercarriage. The excavator, supplied by Liebherr Mietpartner GmbH has a working height up to 37.0 m and is utilized for work at the upper floors. The excavator worked very satisfactory in tight quarters due to the great working height but also due to the enormous reach of 20 m with an optimal stability within a 3600-working radius. It was possible to easily cut and remove even the heaviest steel girders with the attached shear.

R 974 B VH-HD Litronic

The R 974 B VH-HD Litronic with an operating weight of 120 t is powered by an emission controlled, water cooled Liebherr 8-cylinder diesel engine featuring direct fuel injection, turbo-charger and after-cooler. The output is 360 kW / 490 HP at 1800 RPM. The long-front attachment is fitted with a Liebherr hydraulic quick coupler. A 2.5 t concrete shear as a demolition tool is utilized. The hydraulically variable gauge undercarriage can be adjusted between 3,400 mm and 4,700 mm. Due to the wide base, the rugged and large dimensioned undercarriage provides excellent stability, allowing the operator to work precisely and smoothly. The cab with generously sized windows on all sides can be tilted upwards by 30° and provides excellent visibility of the working area and of the entire site.

R 954 B V Litronic

The R 954 B VH-HD Litronic was utilized for the demolition in lesser heights and the removal of the storefronts. The neighboring streets were guarded against falling pieces of concrete by a deflector plate placed on the side of the bucket. The machine with an operating weight of 68 t is powered by an emission controlled, water cooled Liebherr 6-cylinder in-line diesel engine featuring direct fuel injection, turbo-charger and after-cooler. The output is 222 kW / 302 HP at 2000 RPM. The long-front attachment for a working height of 27 m is fitted with a Liebherr hydraulic quick coupler. Either a shear or the bucket with the deflector plate was used as demolition tools. A short backhoe attachment with a hydraulic quick coupler, stored directly on site, was used for other demolition work or for loading of rubble. The changeover between the different attachments is quickly and problem-free possible due to the simple expansion pin connection between the basic boom and the demolition boom without the help of any lifting equipment. The R 954 B VH-HD Litronic is also equipped with a cab that tilts upwards by 30° and an adjustable undercarriage: expanded for optimal stability, retracted for easy transportation. Both demolition excavators were fitted with a water sprinkling system, mounted at the working tools, for the job in Berlin in order to reduce the impact of dust.

In order to provide road traffic and pedestrians in the Joachimstaler Straße with optimal protection, a covered pedestrian walkway and a 7 m tall dust cover were added to the site fence. As a protection for the roadbed and to better distribute the weight, the pavement around the working area for both excavators was covered with 1 m thick layer of sand and recycling material.

A total of 25,000 t of concrete and more than 1,000 t of steel and reinforcement iron had to be removed and recycled. The rubble material is delivered to the Garbe Company's own recycling plant to be treated and re-used. As soon as the demolition is completed, the construction of the new hotel complex will get under way. The new hotel will feature the identical street front as the "Swissôtel" across the street.

Technical Data

R 954 B V Litronic

with mechanically adjustable undercarriage and 600 mm pads

Operating weight__approx. 68 t includes demolition attachment
Engine_____Liebherr diesel D 926 TI-E
Output accord. ISO 9249_____222 kW/302 HP @ 2000 RPM
Track gauge, adjustable_____2400 mm to 2900 mm
Counterweight, removable_____4.0 t
Counterweight, add-on_____3.8 t
Cab, 30° upwards tilt
Armored glass for windshield and roof window
FOPS protection with front guard

R 974 B VH-HD Litronic

with hydraulically adjustable undercarriage and 750 mm pads

Operating weight_____approx. 120 t
Engine_____Liebherr diesel D 9408 TI-E
Output accord. ISO 9249_____360 kW/490 HP @ 1800 RPM
Track gauge, adjustable_____3400 mm to 4700 mm
Counterweight, removable_____6.0 t
Counterweight, add-on_____5.0 t
Cab, 30° upwards tilt
Armored glass for windshield and roof window
FOPS protection with front guard

Attachment

R 954 B V Litronic

Demolition attachment for 27.0 m working height:

Basic boom with two mounting holes
Boom extension_____2.00 m
Demolition boom_____8.50 m
Intermediate boom_____2.50 m
Demolition stick_____8.50 m
Hydraulic quick coupler
Demolition shear
Bucket with deflector plate

Backhoe attachment:

Main boom_____5.50 m
Stick_____2.35 m
HD-bucket_____2.70 m³

Storage racks for backhoe- and demolition attachment

R 974 B VH-HD Litronic

Demolition attachment for 37.0 m working height:

Basic boom with two mounting holes
Boom extension_____4.0 m
Demolition boom_____11.0 m
Intermediate boom_____2.7 m
Demolition stick_____12.5 m

Hydraulic quick coupler

Concrete shear

Storage rack for demolition attachment