

About as Big as it Gets

The Overburden Conveyor Bridge F60

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Its name—Overburden Conveyor Bridge F60—is not very sexy—nor does it reveal for non-engineers much in the way of description.

But it happens to be “the largest *movable* technical industrial machine in the world,” according to available reports. Yes, bigger than the Bagger 293 and NASA’s Crawler-Transporter.

For the non-engineers among us, an overburden conveyor bridge is a piece of mining equipment used in strip mining for the removal of overburden and for dumping it on the inner bank of the open-cut mine. It is used together with multi-bucket excavators—frequently bucket chain excavators—that remove the overburden which is moved to the bridge by connecting conveyors. (In mining, overburden is the material that lies above an area that lends itself to economical exploitation, such as the rock, soil, and ecosystem that lies above a coal seam or ore body.) Overburden is removed during surface or strip mining; because it is typically not contaminated with toxic components, it is also used to help restore a played-out mining site to some semblance of its original appearance before mining began.

The F60 (the cutting height is 60 m) is a series designation of five overburden conveyor bridges used for brown coal open-cast mining in the Lusatian coalfields of Germany. They were built by the former Volkseigener Betrieb (VEB) TAKRAF (global German industrial company based in Leipzig) when the publicly owned operation was the main legal form of industrial enterprise in post-war Germany. The first conveyor bridge was built—over four years—in 1972, being equipped with a feeder bridge in 1977. The second was built (two years) in 1974, having been equipped with a feeder bridge during construction. The third bridge was completed in 1978, being provided with a feeder bridge in 1985. The fourth and fifth conveyor bridges were built 1986–1988 and 1988–1991.

So how big is “big”? *Ach du lieber!-big.*

Check this out:

Length: 502 m (higher than the Empire State Building)

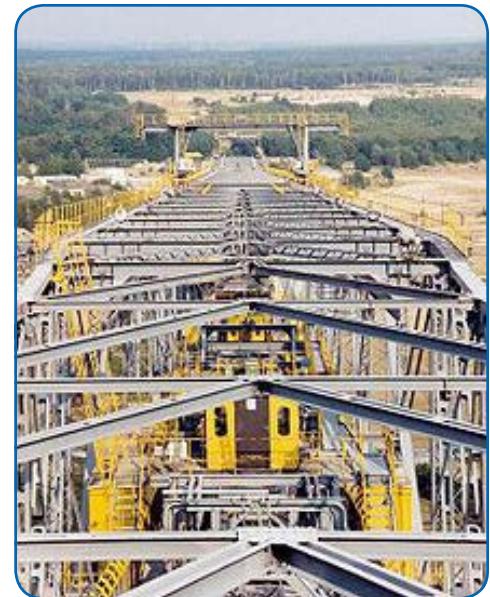
Width: 240 m

Height: 80 m

Weight: 13,600 metric tons

Also described as “a lying Eiffel tower,” the Overburden Conveyor Bridge F60 is indeed the largest land vehicle of any type by physical dimensions.

The behemoth features two chassis with wheels (bogies)—one on the dumping side (front) and one on the excavating side (back)—running on two rails (1,435 mm or 4 ft. 8.5 in standard gauge). In addition to the two rails on the excavating side, there are another two rails for the transformer and cable cars. There are a total of 760 wheels on the bogies, of which half (380) are powered. The maximum speed of the F60 is 13 m/min (0.78 km/h); operating speed is 9 m/min (0.54 km/h).



The F60 has two excavators on the sides to do preparatory work, one each on the northern and southern cross-wise conveyor. They each have an output of 29,000 m³/h (38,000 cuyd/h) (26,448 t/h or 26,030 long ton/h or 29,154 short ton/h), which corresponds to a volume the size of a soccer field with a depth of 7–8 m (23–26 ft). There are nine various overburden conveyor belts with a speed of 10 m/min (0.60 km/h). The F60, including the two excavators, requires 27,000 kW (36,000 hp) of power. The bridge needs 1.2 kWh (4.3 MJ; 4,100 BTU) of electricity to convey one cubic meter (1.3 cu yd) of overburden—from the cross-wise conveyors up to the dumping—at a height of 75 m (246 ft).

Four F60s remain in operation in the Lusatian coalfields today; the fifth F60—the last one built—is in Lichtenfeld-Schacksdorf and is accessible to visitors and tourists. The installation was carried out between 1988 and 1991 in the Klettwitz-Nord open-cast mine. The F60 began operation in March 1991. Between its commission and shut-down in 1992, it moved around 27 million cubic meters of overburden. After German reunification the mine became the responsibility of the Lausitzer und Mitteldeutsche Bergbau-Verwaltungsgesellschaft (Lusatian and Middle-German Mining Administrative Society, LMBV), which closed the mine on the orders of the German federal government and renovated it economically and in a way not harmful to the environment.

Between 2000 and 2010 the Internationale Bauausstellung Fürst-Pückler-Land (International Building Exhibition [IBA]) was active in providing new momentum to the region, and the former open-cast mine of Klettwitz-Nord is an example of that. The mine has been converted into a “visitors’ mine” and the conveyor bridge has been accessible since 1998. Added, various sound-and-light installations enhance the facility’s attraction for visitors (tourists). The Overburden Conveyor Bridge F60 is just one outsize example of the century-old German tradition of producing international construction exhibition projects that encourage urban development in the form of great constructional innovations. (Source: Wikipedia.) **PTE**