

Powered by compressed air

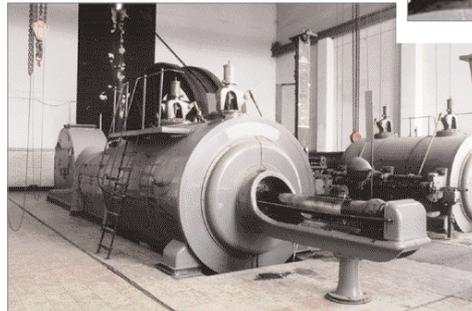
Up and Down the Mine

The hoisting engine at Radbod colliery in Hamm, Germany is driven by compressed air

"Watt's a steam engine?" – it's really quite simple. The expansion of a compressed gas moves a piston and this linear motion is converted to rotary movement to drive a machine or a vehicle. With so much coal around it's hardly surprising that a large number of the hoisting engines used in coalmines were driven by large steam engines, especially if cheap steam was available as a by-product of a nearby power station. The Radbod colliery in Hamm, Germany, ceased production at the end of the 1980s but must be kept open as it links with the two working mines of the of the Ruhrkohle AG known as Heinrich and Robert, providing them with vital ventilation and drainage. Miners are lowered down 'Shaft 5' of the Radbod mine at least once a week to carry out necessary maintenance and inspection, but to keep the steam generating plant running just for this occasional hoisting is hardly cost-effective. A conversion to electric drive was considered but found to be too expensive. The steam driven hoisting engine was installed in 1951. Valves

operated by push rods and rocker arms from a camshaft controlled the feed to the huge cylinders, and just like all large, slow moving machines they are still in perfect condition even after forty years of service. "What would happen,"

The pistons of the 50 year-old steam engine are now driven by compressed air



complete satisfaction of the operators. The compressed air is stored in a 73,500-litre pressure vessel, the insulation of which is a



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The push rods and rocker arms that operate the engine's valves

reminder of the days when it held superheated steam at 300 °C for the hoisting engine.

The miners being lowered down the 1,140 metre deep Radbod shaft are satisfied as well, even though the

cage only descends at four metres per second instead of its previous exhilarating speed of twelve metres per second.

asked Jürgen Zbikowski, a compressed air specialist from Bochum and a KAESER distributor, "if compressed air was used instead of superheated steam?" And that's why two KAESER HSD 760 compressors were installed in the machine building next to the hoisting engine. These robust machines have been supplying a base load of 5,000 and a peak load of 10,000 cubic metres per hour for over ten years now to the

Insulated pipes carry compressed air to the pressure vessel



The 10 kV power supply is transformed down to 5 kV for the compressors

