In modern mechanised coal mines, hydraulic supports ensure that the working space where the coal is being mined is kept safe and open. The complete longwall equipment has a large number of hydraulic cylinders which control the movement of the shields on the one hand and produce the required supporting force on the other. A pumping station with a high delivery rate at up to 420 bar is required to supply the numerous hydraulic cylinders used in longwall equipment with energy. The pumping medium is a water-oil emulsion (HFA).

Example: RAG Ensdorf Nordschacht

The pumping system installed at Nordschacht supplies the hydraulic longwall equipment with HFA fluid over a distance of around 5000 metres. Three faces are supplied with fluid. The frequency-controlled pumps automatically adapt to the respective operating requirements without manual intervention being necessary. This station is the first mining station in the world to control pressure completely automatically by means of a frequency converter.

The system is located on the 24th and thus lowest floor of the Saar mine at a depth of 1790 metres. Both the current mining field and the new one to be developed can be supplied from this strategically favourable point.

Another benefit of the proximity to the shaft is that the overall system was able to be constructed in a non-explosion-proof version.
Hydraulic longwall power packs

The maximum pressure is 420 bar with a volume flow of 318 l/min per pump with a capacity of 250 kW each. There are six pumps installed.

The system went into operation above ground in May 2002. Nowadays KAMAT supplies longwall mining pumps up to 800 kW and 1100 l/min per pump.