

Korfmann Lufttechnik is your partner for:

- ▶ Coal Mining
- ▶ Potassium Mining
- ▶ Ore Mining
- ▶ Tunnel Construction
- ▶ Metro Tunnels
- ▶ Road Construction
- ▶ Underground Hydroelectric and Cavern Power Stations



Korfmann Lufttechnik GmbH

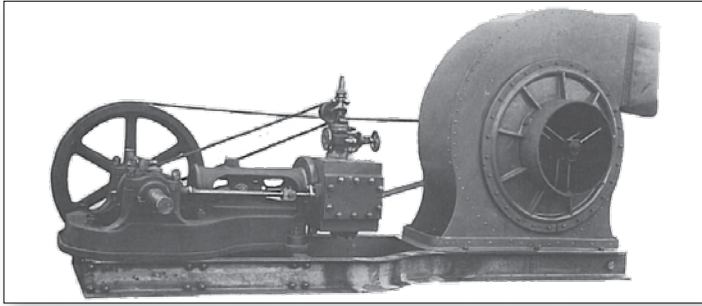
Hörder Straße 286, 58454 Witten
PO Box 1749, 58407 Witten
Germany

☎ +49 (0) 23 02/ 17 02-0

☎ +49 (0) 23 02/ 17 02-153

✉ info@korfmann.com





It all started at the end of the 19th century with steam-driven Radial Fans that later developed into Axial Flow Fans with compressed-air turbines and electric drives. All of those systems supplied personnel underground with fresh air.

Today, we offer an extensive type range of Axial Flow Fans, which are customized to the customers' requirements with optimal performance and highest efficiency in mind.

Our main areas of application are:

- ▶ Coal Mining
- ▶ Potassium Mining
- ▶ Ore Mining
- ▶ Tunnel Construction
- ▶ Metro Tunnels
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The ventilators of series *ESN*, *GAL* and *AL* are used in tunnel construction and are driven by IP55 protection type compliant three-phase motors.

If a gas is present (e.g. methane), motors that are protection type EExd(e)II2BT4 compliant have to be used. For coal mining pressure-resistant, fully enclosed motors need to be used that are protection type EExd(e)I compliant. The impeller and housing are built with materials that are governed by official safety regulations that prevent ignition through sparks. Therefore, our products conform with the ATEX directive (ATEX94/9/EC).



For safety reasons, the combined fans of the *ESN..T*-series can be driven either by compressed air or electrical energy. Their electric motors have contacts that protect the power supply system from residual voltages during compressed-air operation.



For the sophisticated ventilation requirements in coal mining, the electric fans of the *ES*-series and the combined fans of the *ES..T*-series are classified according to their configuration and performance (compliant with DIN 21 625 and DIN 21 626). International standardizations are in development.

Compressed-air fans of the *DV*-series are driven by single-stage constant pressure turbines with Laval nozzles. They are used in potentially explosive under-



ground areas or in pits that have pneumatic drive systems only.

Korfmann also offers fans for projects that require state of the art protection for the environment. These fans are driven by three-phase motors (compliant with type EExd(e)II) and are mainly used for the ventilation of leachate shafts in large-scale waste disposal dumps.

The AGE-series fans deliver a solution for fire protection. They allow for an effective smoke evacuation and are an essential part of the mobile fire-fighting equipment of municipal and factory fire-brigades.

Axial Flow Fans with diameters of 2,000 mm up to 2,800 mm are designed for air volume flows of up to 250 qm/s and are mostly utilized in the main ventilation system of ore mines and cavern structures.

Contra-rotating Axial Flow Fans of the GAL and dGAL-series gain individual static pressures of up to 6,000 Pa and thus are especially suitable for driving long tunnels and to overcome high-pressure losses, e.g. in filter units.

Due to sophisticated aerodynamic design of the impellers and guiding vanes high-efficiency levels even for large volume and pressure ranges are obtained. Pressure and volume of larger units can be regulated by adjusting the impeller and can therefore be adapted to variable mine and tunnel structures very easily.

As a result of their characteristics, all fan sizes are suitable for operation in series and in parallel. Fans with a stable characteristic curve profile are especially qualified.

Under optimal electrical conditions the range of regulation can be extended individually even further by varying the speed through multiple pole-changing drive motors. This approach allows for progressive regulation of the speed with voltage-driven frequency converters.

Micro-adjustments to reach the desired working point, which are programmable in advance and controlled remotely, can be achieved by means of frequency converters as well. Thereby damage to flexible plastic ducts caused by switch-on shocks can be avoided.

Our extensive range of silencers with a time-tested change-over system for the damping elements allows for the reduction of noise emissions to the mandatory statutory limits.

Intake, baffle-type and impact silencers complement



the product range as well as various enclosures and noise damping mats which reduce noise radiation.

We offer an electronic computer test station that assures compliance with the characteristics of the fans and the noise levels.

Furthermore, Korfmann supplies ventilation components for Tunnel Boring Machine (TBM) Backup Systems such as dust extractors, cooling fans, silencers, complete purging fans, measuring instruments and more.

The product range of Korfmann fans also meets the requirements for dry and wet-type dust collectors having a stable characteristic curve.

In addition, Korfmann offers the LVS duct storage device, which provides fresh air for driving long tunnels and mine excavations in combination with the fans mentioned above. The LVS Cassette System, which has been developed in cooperation with Ruhrkohle AG, accommodates for air duct material of up to 200 m in length and a diameter of up to 3 m.

This will ultimately lead to lower installations costs for the air duct assembly and significantly lower pressure losses in the air duct lines.

We are certain that our extensive list of references will convince you of the quality of our products. Our experienced engineers are at your disposal for evaluation and discussion of your ventilation needs. They will be pleased to confer with you in person, on the phone or email.

