

MAAG[®] CPU Gear unit

The high-performance gear unit to drive your ball mill.



Reliable planetary gear unit

Developed in 1966, our two-stage planetary gear unit guarantees optimum power transmission and speed reduction for your ball mill. The standard for central driven ball mills today, our MAAG® CPU Gear drives hundreds of raw and clinker mills all around the globe.



Key benefits



Power efficiency exceeds 98.9%



High operational reliability and availability



Low-cost maintenance with long-life gearing and journal bearings



Optimised to suit customers' unique specifications eds 98.9%

Reliable ball mill operation with our efficient CPU Gear Unit

The design of our MAAG CPU Gear Unit has been copied many times, but never equalled in efficiency, quality and ease of installation and maintenance. The compact central drive system delivers dependable power for raw- and cement grinding in your ball mill.

Planetary gear for maximum power efficiency

The simple design holds the secret to the gear unit's high efficiency. Two co-axial planetary gear stages are arranged one after the other. Each stage includes three planet wheels mounted in a rotating planet carrier and an internal toothed coupling guarantees reaction-free power transmission from the first planetary stage to the second. This setup is the most efficient gear arrangement and guarantees optimum power flow from the main motor to your horizontal mill with the fewest possible rotating parts, tooth contacts and bearings.

Your requirements for the grinding process determine the configuration of this gear unit, which can be tailored to suit many application areas. All installations take into account local circumstances and plant specifications, such as motor and mill speed. With power ranges from 1,000 to 10,000 kW, the MAAG CPU Gear Unit has the breadth to adapt output speed to your specifications. We can also add additional features as water injection or a condition monitoring system.

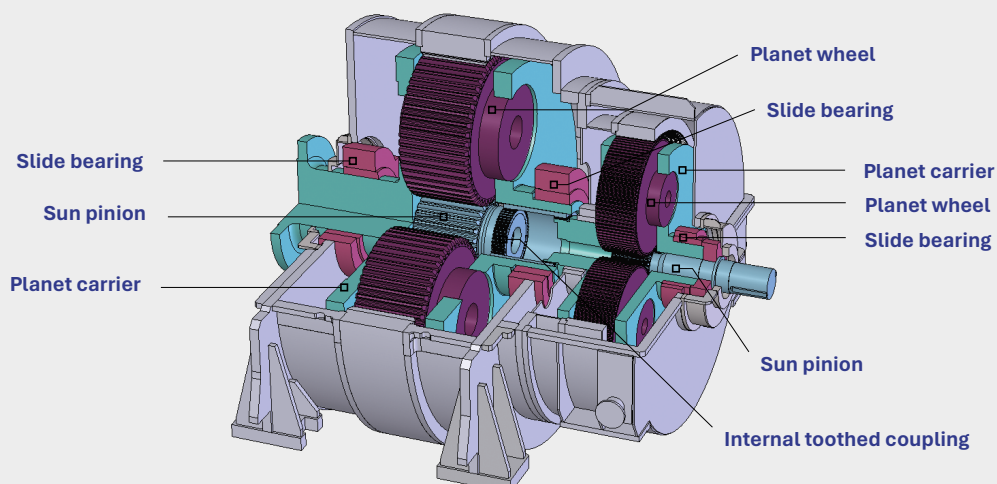
Quality delivers long life

Our modern manufacturing methods and tooling machines enable us to deliver state-of-the-art gear units. This two-stage planetary gear offers an impressive service life, hand-in-hand with minimum maintenance requirements:

- Fewer rotating parts and bearings improve overall reliability
- Case-hardened and grinded tooth flanks with profile correction are very durable and guarantee optimum tooth contact during operation
- The slide bearings with infinite lifetime complete the durable design of this central drive gear unit.

Compact central drive

Finally, the space-saving design of our two-stage planetary gear unit means that it takes up less room than traditional, multistage spur gear boxes. While it may be smaller and lighter, it never compromises on power delivery.



Couplings deliver endurance and ease

Our MAAG® CPU Gear Unit is based on well-proven standardised design, whatever your required power range. With specification to ensure safe and reliable operation, our two-stage gearbox has you covered.

Toothed couplings ensure optimal power flow

The standard scope of supply of our CPU Gear Unit includes the couplings connection our gear unit to the main motor and to your ball mill.

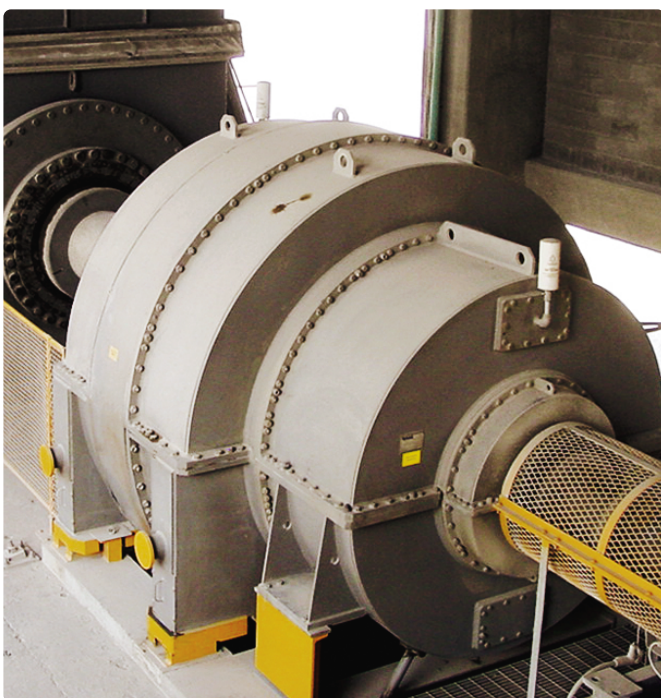
The ZCF low speed coupling is installed between your horizontal mill and the gearbox. The unique design of our toothed coupling combining a high degree of freedom of alignment with efficient torque transmission. Thermal expansions and mechanical deflections resulting from operating conditions are safely absorbed by the ZCF coupling, and only the torque is transmitted to the mill through the torsional shaft. Upon request a water injection system can be installed on the ZCF coupling.

The ZEXF coupling installed between main motor and gearbox is also designed according our own design. Beside the possibility to compensate alignment deviations resulting from thermal expansions and changing operating conditions, this coupling provide a limited axial displacement allowing to eliminate an axial bearing either in the motor or the gearbox. This coupling provides also electrical insulation between the motor and the gearbox and keeps the bearings and toothing free from electro-corrosion.



Couplings support easy maintenance

Maintaining our CPU Gear Unit is very simple. The easy disassembly of the ZEXF coupling and the vertically splitted casing of our CPU Gear Unit ensure that the first planetary stage can be displaced towards the motor. No other equipment needs to be moved or disassemble to get full access to the internals of our gearbox.



Get the most from this effective gear unit

A broad collection of auxiliary systems completes our MAAG® CPU Gear Units. Lubrication system, couplings and auxiliary drive are must-have. But we also provide our monitoring system and service packages round out the scope of delivery.

Oil supply unit keeps your gear running

Our gearbox is lubricated by an external lube oil supply unit which is ideally located beneath the mill drive motor. The oil supply unit is standardized so that one size fits several gearbox sizes. It is equipped with an electrical low-pressure pump, switchable double oil filter, water cooler and the necessary measuring instruments in order to monitor the correct operation of our CPU Gear Unit lubrication. Top priority is given to the operational reliability.

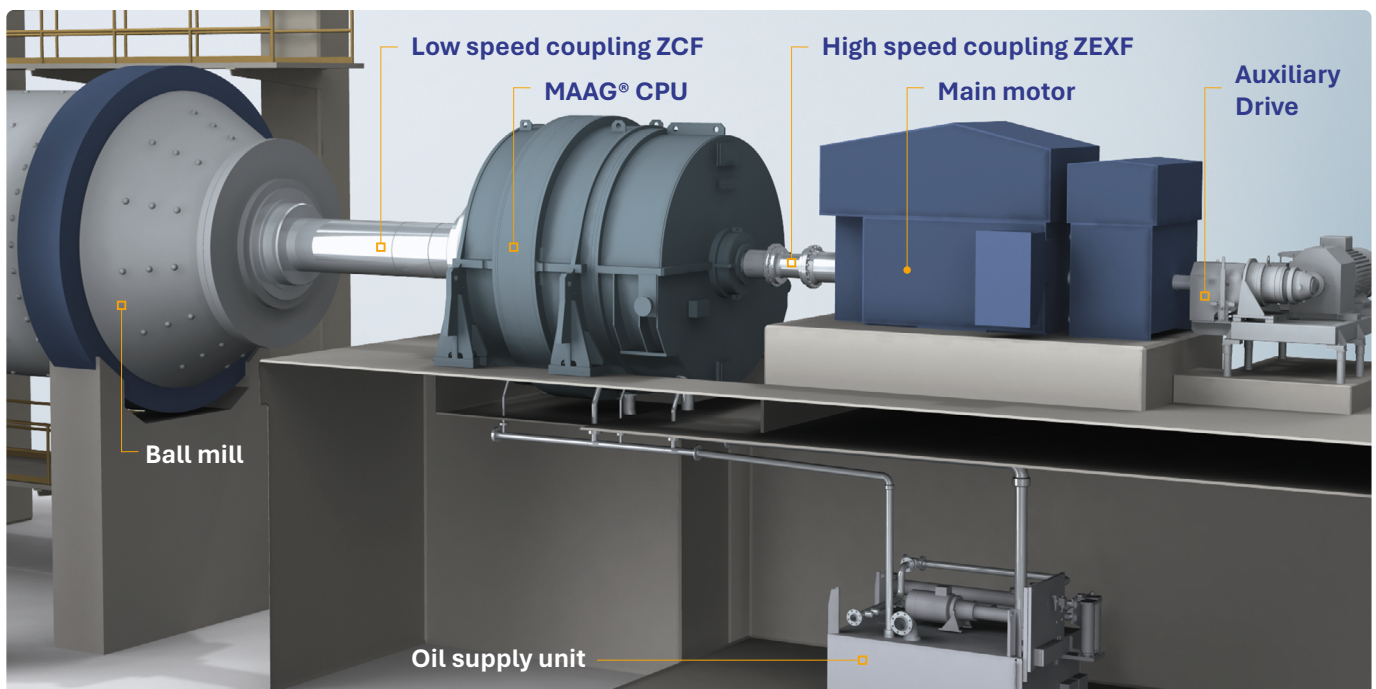
Beyond a basic condition monitoring system with MAAG® CMS

Future equipment failure can be prevented through regular gearbox inspections – e.g. visual inspections (examination of abrasive wear patterns and gear tooth pitting) supported by vibration measurements. With MAAG Gear online monitoring, data about the condition of the installation can be accessed by MAAG specialists remotely. This allows early intervention in case of an incident. Download the Brochure for more information.

Auxiliary drive for maintenance purpose

The auxiliary drive is intended to slowly turn the mill for maintenance works or for the even cooling down of the mill. Placed at the rear end of the motor the auxiliary drive is equipped with a planetary gearbox and a fluid coupling to limit starting torque and to provide smooth acceleration. The overrunning clutch between the auxiliary drive and the main motor automatically disengage the auxiliary drive when the motor is started. A brake can be supplied as option on request. It allows to lock your ball mill in position during maintenance.

Click here to download
CMS brochure



Home of Precision Engineering

For more than 100 years, the MAAG® Gear brand has successfully lived up to its founding vision and values.

Evolving demands in heavy-duty industries are driving the need for more efficient, reliable, and sustainable gear technologies. At MAAG, we are dedicated to providing high-precision solutions that respond to this need and enhance the productivity, sustainability and reliability of our clients' operations in cement, mining, and beyond. With a rich history of innovation and a robust product portfolio, we stand as trusted partners, committed to our mission of driving progress through precision. Discover how MAAG can help you elevate your business.



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