FLENDER GEAR UNITS



OUR DRIVES BOOST AVAILABILITY.

Flender conveyor-belt drives are powerful and efficient and are made for extreme conditions.

flender.com

FLENDER

AT HOME IN THE MINE.

Whether in Peru, China or Australia, in Chile, Russia or Zambia, Brazil, India or the USA – all over the world conveyor systems transport billions of tonnes of material over long distances, often under extreme environmental conditions and at particularly high temperatures and mostly across impassable terrain without water and with poor infrastructure.

As a leading provider of drive technology for primary production and material extraction we are very familiar with all the requirements of mine operation. For decades we have been working with our customers to develop optimised and integrated solutions to meet extreme local requirements.

To lastingly ensure system availability on long distances, in narrow spaces or in hot, arid hilly and mountainous districts, we have designed our various solutions to precisely meet local conditions.

Output power and speed merely reflect only the self-evident parameters that our customers set us. In project management we often talk about flexibility, mostly about cooling and always about system availability. An idle conveyor belt way out yonder, right at the very edge, is every mine operator's nightmare. Stoppages are therefore to be avoided at all costs.

A continuously running conveyor belt is our goal for you.





24 HOURS A DAY, 365 DAYS A YEAR.

Using the temperature requirement as the decisive factor, we determine the thermal capacity. This is the decisive factor for the operational capability of a gear unit and an important criterion when selecting the right provider. Because it determines how the gear unit will be configured.

In some cases it may lead to the selection of a smaller size, because the level of heat dissipation determines the housing surface. For our customers that means by implication considerable cost-saving potential, because Flender gear units' outstanding thermal capacity saves having to move up to the next-largest gear unit.

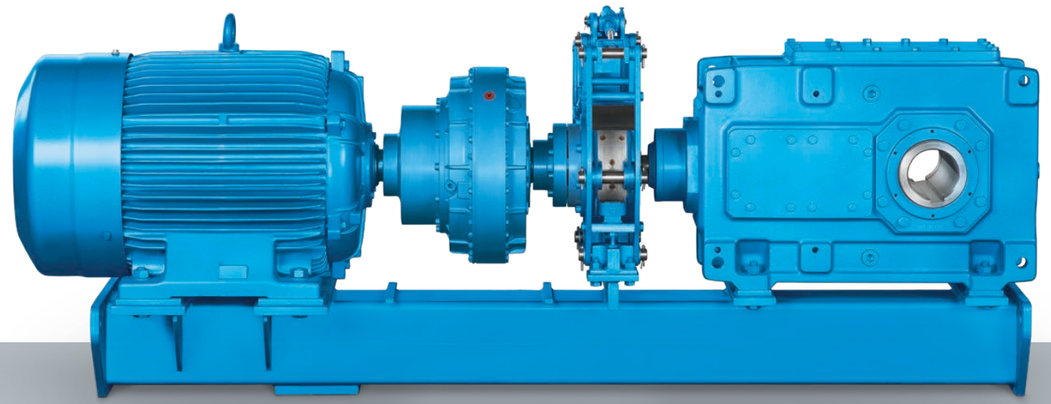
The reliability of a drive is affected by many factors. The major deciding factors are the quality of the drive assemblies, the coordination of the system as a whole and the temperature characteristics of the gear unit in continuous operation. This last factor is determined by two main parameters: the natural environmental conditions and the intrinsic temperature development, which is in turn an expression of quality and level of development.

Because in gear-unit construction the best engineering performance ultimately always results in an extreme power density that is in any case not to be achieved without the latest production methods and highest precision in production. Too high an operating temperature over time leads to impairment of the lubricating capacity of the oil, damage to the seals and so to increased wear. An optimised gear-unit temperature thus increases the service live of the system, reduces life-cycle costs and maximises the life of the drive unit.

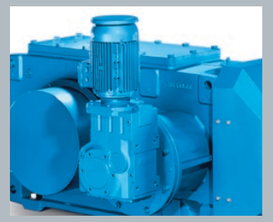
For many system operators cooling systems represent additional risk potential. Often there is no water supply. Up to a certain size an optimised housing surface enables the gear unit to be cooled with ambient air.

However, an enlarged housing surface on its own is only part of the solution. What is decisive is that the ambient air can be guided to the gear-unit housing direct and over as much of the surface as possible. To guarantee permanent dissipation of the boundary air-layer, Flender uses highly efficient fans. They guide the air over the housing and ensure that the heat is conducted away from it. Flender has invested a particularly great deal of engineering effort in the air-flow mechanics bound up with this. Specially designed air-guide hoods ensure that the air flows evenly over the entire surface. This effective, fully developed air-guidance system is not used in drive technology anywhere else in the world.

Drive train on a swing base with coupling and gear unit from the standard range.



The drive train can be optionally extended:



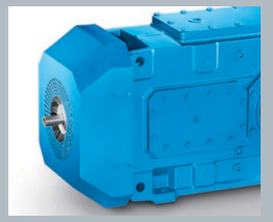
auxiliary drive units



backstops



enlarged gear-unit surface for improved heat dissipation



increased cooling by axial fans and hoods

THE RIGHT SOLUTION FOR EVERY CONVEYOR.

Flender gear units represent by far the largest range of highly developed conveyor-belt gear units anywhere in the world. With three designs, a total of 46 construction sizes and a wide variety of standard construction types we have the right solution for any drive requirement.

If environmental conditions permit, it makes sense to cost-effectively put together a drive system from the standard portfolio. The appropriate Flender gear units for this are compact, have a high power density and are available in 25 construction sizes. The modular system with its large selection of gear units, motors, bell housings, swing bases and add-on parts means that there is something available for every requirement.

For special temperature requirements Flender gear units with optimised housing surface, fans and fan hoods and, if needed, further cooling options are used. They guarantee outstanding heat management and are available in 13 sizes.

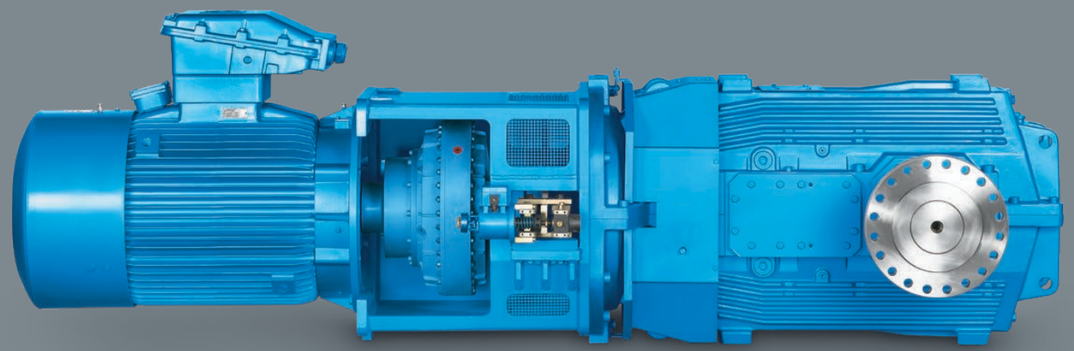
Not every mine offers enough space for complicated measuring, alignment and fitting work. Moreover, the need for specialist personnel with the necessary know-how to carry out assembly work represents a challenge to many a mine operator.

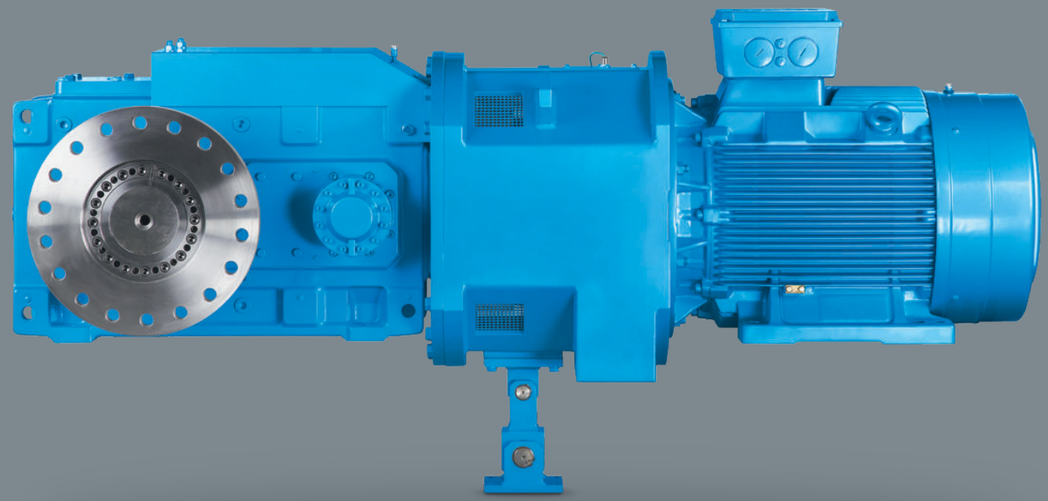
The patented self-aligning system is here, as a drive system, the perfect complete solution in the power range up to 550 kW. It is available in eight sizes and, with axial fan, fan hood and the patented "Clever-Cooling System" as an intelligent air-flow guidance system ensures optimised heat dissipation. It offers flexibility for the start-up, both for the space conditions and the location or the assembly effort. No special know-how is needed for conversion or demounting, because the drive unit needs no aligning.

The motor and the gear unit are firmly linked together via a flange. High production quality also ensures the necessary accuracy for connection to the bell housing. By eliminating measuring and alignment errors during initial assembly and installation fault-free operation is ensured.

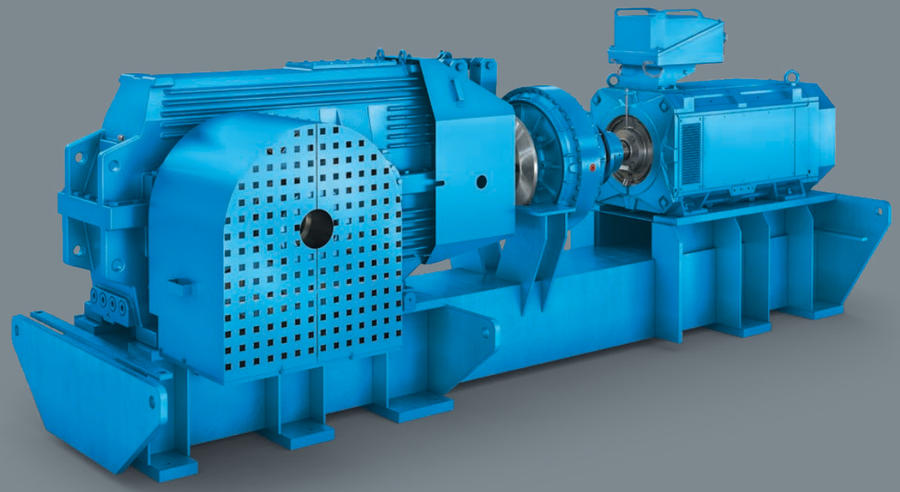
The self-aligning system may be used as a right- or left-hand version without the need for conversion. Fitters are therefore also free to choose which side of the conveyor belt the system is to be fitted on at the site. Qualities that operators of underground mines especially appreciate.

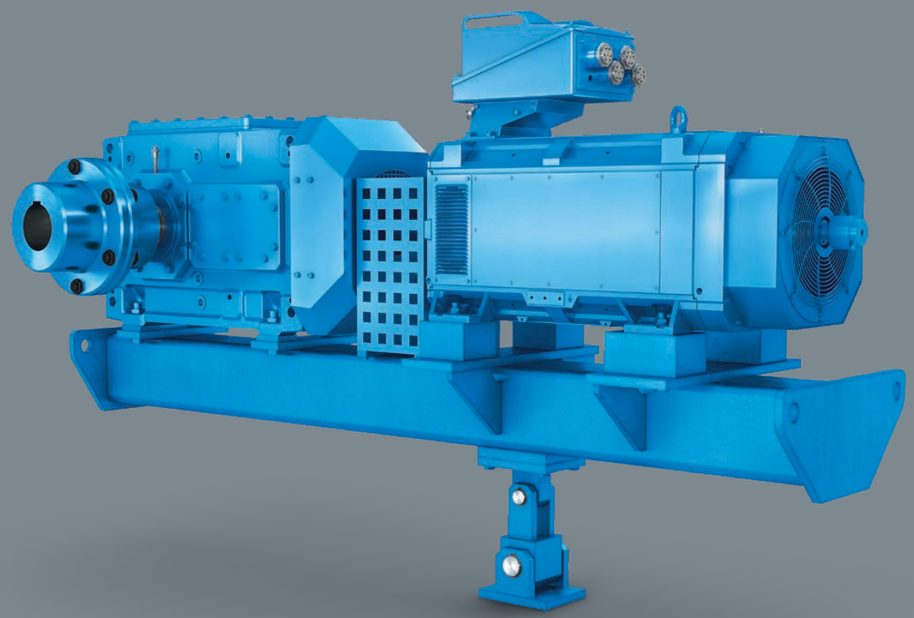
The drive fits very compactly, is transported to the site as a fixed unit, is installed there very easily and ensures maximum availability of your plant.





As a variant for moderate temperature zones, we also include in our range a self-aligning system with gear units from the standard portfolio with mounted motor bell housing. The advantages of a self-adjusting drive are combined here with those of the standard portfolio – fast available quality on favourable terms.





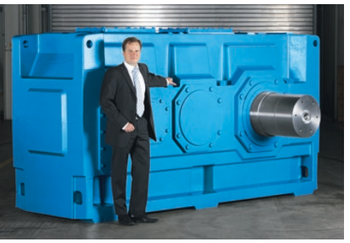
Conveyor-belt drives on swing base with and without extended housing surface

THE PLUS POINTS OF FLENDER GEAR UNIT ENGINEERING:

- Largest selection thanks to numerous sizes with few component variants
- Reliability and operational reliability with highest power density
- Mainly contactless and wear-free labyrinth seals for absolute dust-tightness
- Flanged output shafts enable easier gear-unit fitting combined with a small space requirement
- High efficiencies and outstanding noise characteristics thanks to ground bevel gears, sound-damping housings and especially high tooth contact ratios
- May be used as a right- or left-hand version
- Many output shaft variants available, such as hollow shafts, solid shafts, solid shaft with keyway
- Excellent thermal capacity thanks to extended housing surface
- Comprehensive cooling options such as our “Clever-Cooling Concept”

MULTIPLE DRIVES PREVENT TOTAL BREAKDOWNS.

For a mine operator the availability of his system is a vital asset. For this reason, most of all in the case of large systems with a multi-megawatt power requirement everything is done to lastingly ensure smooth operation. Particularly with regard to operational reliability and cost, drive solutions with gear units play to their strengths.



"The large range of gear-unit designs offers a suitable solution for every requirement."

Just the right solution

One of the special advantages of our drives is their combinability. Not only is fitting out a system with a multi-drive just right for the necessary power requirement, a redundant system also delivers reliable protection against total failure. In the rare case when service is needed the sub-drive concerned can be decoupled from the system, which can then continue to be operated on reduced power. Operation is then interrupted for only a short while. A large storage of spare parts is likewise redundant, quickly available and furthermore easy and cost-effectively stocked.

Highest possible flexibility

Conveyors are continuously moving. Our drive solutions are insensitive to ever-present vibration. They make no special demands of the foundation, structure and system design. They do not need to be installed on the ground or floor.

Cost-effective add-on parts

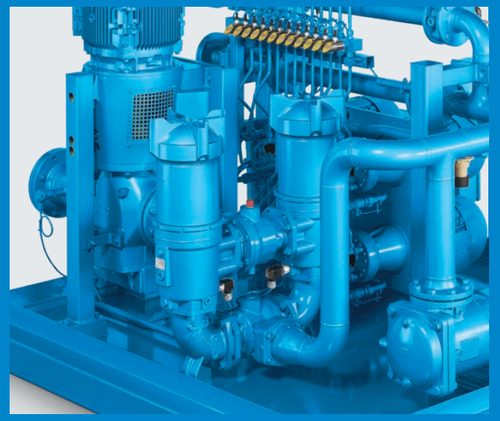
To prevent the belt from going on running when it is wished to stop it, our drives can be fitted with small, cost-effective brakes on the drive shafts and for soft-starting with our proven FLUDEX® fluid couplings. Also our backstops are designed small and at least cost and are fitted to the drive shafts. In regenerative operation, incidentally, asynchronous motors are supremely suitable for use as generators for power generation.

Low overall costs

Our solutions furthermore require no comprehensive monitoring by specially qualified personnel. The gear units are largely maintenance-free and what costs they do cause are merely very low costs for oil maintenance.



Flender coupling



Flender oil-supply system

A drive system is not just gear unit, motor and coupling. Our complete drive portfolio also includes a broad range of component parts and services:

- Frequency inverter
- Motors
- Auxiliary and maintenance drive units
- Bell housings
- Add-on components (backstop, swing base)
- Oil-supply systems
- Oil-coolers
- Sensors
- Condition monitoring
- Plant and process control
- Financing

Anyone entering into a system partnership with Flender profits in every way from a functioning drive system assisted by proven control technology. We ensure the choice and configuration of the right drive assemblies, coordinate them and optimise them for you in the field.

THE INTEGRATED DRIVE SYSTEM

The more efficient the drive, the lower the running costs. Coordination and control of the complete system play a decisive role here. Flender has always believed that the drive train must be seen and understood as a whole.



In conveyor technology our gear units have for years been an integral part of a thousand complete solutions. These drive systems reduce our customers' planning costs, lessen interface risk and cut the number of contact persons to one only – all of which are decisive factors. The drive train as a whole has been consistently and specifically developed to meet our customers' requirements.

For this reason Flender offers not only a full range of high-quality component parts for the drive train but also their perfect coordination, from concept through to a functioning system.

So out of simple drive sub-assemblies we make real systems. Our drive technology ensures maximum productivity, energy efficiency and reliability in every area of automation and over the entire life cycle.

Consultancy

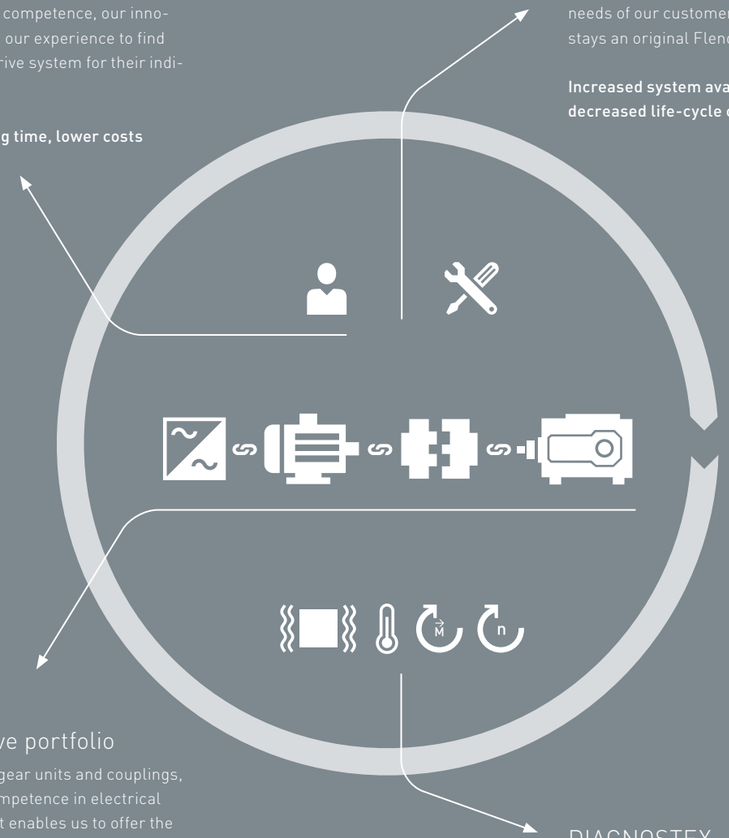
Our customers use our interdisciplinary know-how, our application competence, our innovativity and not least our experience to find precisely the right drive system for their individual requirement.

Reduced engineering time, lower costs

Flender services

From diagnosis and support through spare-part and repair services to maintenance and retrofitting services, the Flender portfolio provides individual solutions fully tailored to the needs of our customers. So a gear unit always stays an original Flender gear unit.

Increased system availability, decreased life-cycle costs



Integrated drive portfolio

We not only provide gear units and couplings, but also have the competence in electrical drive technology that enables us to offer the entire drive train – perfectly integrated, with optimal interaction between all components, as a standard or individual solution.

Less interface risks, higher efficiency

DIAGNOSTEX

The perfect drive fits the torque requirement exactly, is energy-efficient and cost-effective. In short, it is as if made for the application. Flender DIAGNOSTEX® makes our gear units digital. It paves the way for these perfect solutions and at the same time forms the basis of condition-focused maintenance.

Industry 4.0, reduced costs



SERVICES

Increasingly stringent requirements make it all the more important for industrial systems to work with maximum productivity and efficiency. Flender services strengthen the competitiveness of companies in industry, raw-material extraction and energy generation. In the face of high cost pressure, rising energy prices and ever more stringent environmental demands our services are becoming an important competitive success factor.

Let our service experts support you all the way, from planning through operation to modernisation of your plant, and profit from our experience and our comprehensive knowledge of your application – in any one of over 100 countries, 24 hours a day, seven days a week.

Reduce stoppages, minimise failure times and increase the productivity, flexibility and cost-efficiency of your system.

PROFIT FROM

- our drive-train competence available nowhere else in the world
- perfect drive configuration thanks to our decades of experience
- optimum drive solutions to meet any requirement
- the largest possible product portfolio covering the entire range of conveyor technology
- highly developed drive assemblies manufactured with the latest and highest-precision production technologies and processes
- reliability ensured by the outstanding quality of all the component sub-assemblies
- an industrial standard tested to meet the most stringent demands and proven a thousand-fold
- our global production concept offering large production and assembly/installation capacity at many locations throughout the world
- speed regulation thanks to perfectly matched frequency inverters and an outstanding plant control system
- our international service network
- early fault detection as part of our condition-monitoring system



WE **MOVE** the WORLD

Flender GmbH
Alfred-Flender-Straße 77
46395 Bocholt
Germany

Article no.: FLEX-B10102-00-7600
Printed in Germany
Dispo 27904
XXXXXXXXX

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

flender.com