thyssenkrupp Polysius

Apron feeders

The ideal solution for feed and discharge conveyors in crushing plants

thyssenkrupp

Conveying success for your business

When the going gets tough, the tough get going: apron feeders from thyssenkrupp Industrial Solutions offer the ultimate in performance, reliability and cost-effectiveness. With us as your partner, you can expect the optimum, customized solution for even the most demanding of jobs.

Call on our services and you can count on a wealth of experience and constant innovative drive. As a leading manufacturer of machines and plants for the mining and cement industries, we supply well-engineered apron feeders that have stood the test of time in the hardest service conditions. At the same time, we invest in intensive research and development work to make proven solutions even better and to adapt to changing demands.

Whether a standard or special design thyssenkrupp Industrial Solutions can provide the optimum solution to meet your needs. Our flexibility is a major plus: We act on your specific requirements and adapt our systems to suit the material and the ambient conditions, optimizing proven technology according to your specifications. The benefits of our systems are numerous: high throughput coupled with low costs, minimum maintenance, ease of operation and maximum reliability.

Stationary single-shaft impact crusher (right) fed by two apron feeders at Cementos Progreso S.A., Guatemala

Type PB 200/250
Throughput rate 1,100 t/h

Pre-homogenization of raw material by means of online analysis and coordination of apron feeder speeds

Stationary single-shaft impact crusher (below) fed by three apron feeders at Cruz Azul, Aqua Caliente, Mexico

Type PB 200/250
Throughput rate 1,000 t/h

Pre-homogenization of raw material by means of online analysis and coordination of apron feeder speeds

Fields of application and design characteristics

Apron feeders from thyssenkrupp Industrial Solutions are used throughout the world to transport all kinds of raw materials in a wide range of fields.

Their sturdy design has stood the test of time even under the harshest conditions in applications from cement production to the mining industry. They are used to feed a range of crushers with lumps of “run-of-the-mill” material up to two meters in size or as dosing systems for downstream drying and/or grinding processes.

The largest apron feeders to date have dimensions of up to three meters in width and 30 meters in length. Depending on the job to be done, apron feeders are equipped with lubed-for-life chains and rollers ranging in size from D4 to D11, ensuring a high degree of safety and a long service life.

Applications

- From cement production to the mining industry

Features

- thyssenkrupp apron feeders can be installed horizontally or at an incline
- Angles of inclination of up to 26° are possible due to specially designed aprons
- A uniform bed depth of the material, ensuring a uniform material flow to the downstream components.
- Steep angle of inclination means compact plants can be built to reduce apron feeder lengths and capital costs

Apron feeders are designed for conveying capacities of more than 14,000 t/h and can be integrated into stationary, semi-mobile or mobile plants.

From top:

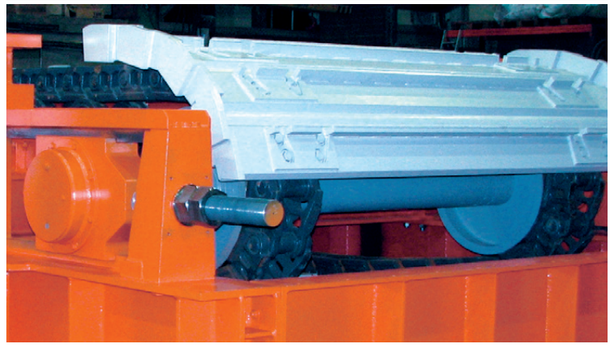
Apron feeder
RKF 2.2 x 15.8 - D8
with inboard chain

Apron feeder
RKF 3.4 x 17.0 - D9
with outboard chain

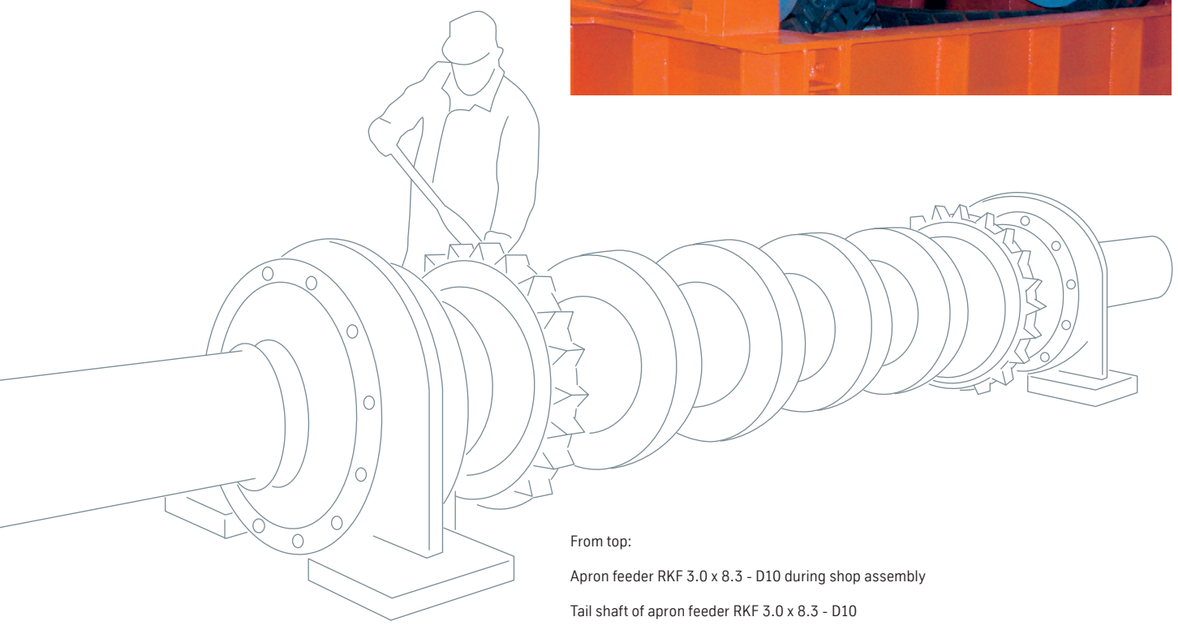
Head end and take-up station

In thyssenkrupp apron feeders the drive shaft is journaled in heavy-duty, double-row spherical roller bearings and housings.

Arranged on this shaft there are cast sprockets which are divided into segments so that each element can be replaced without the need to dismantle the chain. Support rings for the slide shoes of the aprons are also mounted on this shaft to prevent deflection of the aprons and spillage at the discharge point.



The chain tension can be adjusted via tensioning spindles. In combination with the relocatable drive shaft, it ensures optimization of the feeder discharge point, e.g. into the crusher.



From top:

Apron feeder RKF 3.0 x 8.3 - D10 during shop assembly

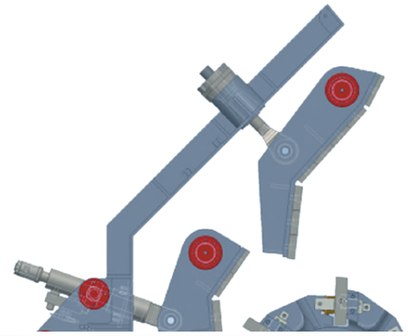
Tail shaft of apron feeder RKF 3.0 x 8.3 - D10

Drive shaft of apron feeder RKF 2.5 x 26.0 - D10

Drive systems

thyssenkrupp apron feeders are equipped with either hydraulic or electric motors. All drives are designed to allow starting even under load.

Electromechanical drives consist of a planetary gear unit with a hollow shaft design and a three-phase motor. The speed of the apron feeder is controlled via a frequency converter, allowing the speed to be infinitely reduced to 25 percent of the nominal speed. With hydraulic drives the speed can be infinitely varied between nominal speed and stop. This is achieved using either axial piston motors in combination with planetary gear units or directly using a Hägglunds hydraulic motor with no additional gearbox.



As all drives can be set accurately, it is possible to combine two or three apron feeders, thus allowing the material for cement production to be pre-homogenized.

From top:

Three apron feeders with hydraulic drives

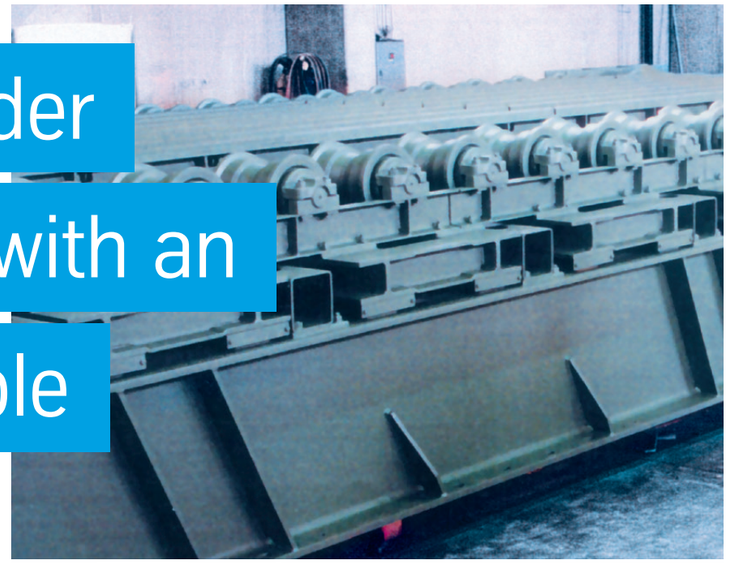
Hydraulic drive with Hägglunds motor

From top:

Hydraulic drive with axial piston motor

Dual electromechanical drive

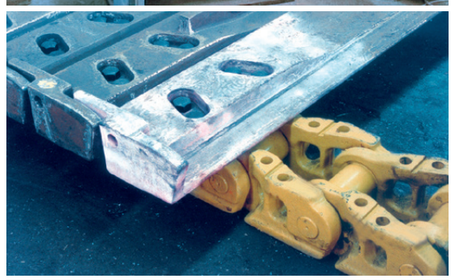
Apron feeder equipped with an impact table



The hopper zone of thyssenkrupp apron feeders is equipped with additional rollers and slide rails to ensure uniform load distribution on the main frame of the apron feeder. For additional protection of the supporting structure the apron feeders can be equipped with an impact table with heavy-duty shock absorbers.

The maintenance-free slide rails are made of special steel which allows the apron feeder to be operated without an additional lubrication system. This eco-friendly design avoids grease overflow, resulting in greater operational safety.

thyssenkrupp apron feeders are equipped with reinforced cast aprons in a welded design. In order to minimize the amount of spillage during operation, each apron comes with a special sealing lip. The thickness of the top plate can be tailored to the respective requirements.



From top:

Heavy-duty impact table with shock absorbers

Slide shoes of aprons

Maintenance-free slide rails

Cast aprons checked for surface cracks

Reinforced aprons in a welded design

Services that back up your quality

We offer our customers not only optimum, customized technical solutions, but also comprehensive, tailored services ranging from the engineering of apron feeders to their operation, and modification if needed.

If you have an apron feeder in operation, the maintenance and repair crews from thyssenkrupp Industrial Solutions are on hand whenever you need us to cater to your needs, from specialist advice, inspections and modifications through modernizations and performance enhancement to damage analyses and repairs, which are performed exclusively by our highly qualified assembly personnel using high-quality, certified spare parts. Alternatively, you can opt to have your apron feeders maintained and repaired at our workshops. You can call on these services not only for apron feeders from our own production lines, but also for systems manufactured by other suppliers.

Increase the productivity of your machines and plants! Our Services will assist you in doing so.

From top:

Control and diagnostic system

Spare parts store

Whether the spare parts are to be collected by the customer or by air freight, we liaise with you to find the quickest and most cost-effective shipping option.

One-stop-shop service

- Spare parts management
- Field and workshop services
- Revamps and outages
- Asset management

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