

POLYTRACK® clinker cooler.



A company of
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Technologies

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POLYTRACK® – the future-oriented clinker cooler from Polysius.



New, unconventional solutions provide the basis for the sophisticated clinker transport mechanism: the transport tracks are driven by hydraulic cylinders installed underneath the static aeration floor.

Specially developed low-wear sliding elements reliably seal the few contact zones between the static and the moving cooler components.

Only if you define what you need,
do you have the chance to get what you want.



POLYTRACK® hydraulic power unit.

The »wish list« that Polysius compiled before starting with the development of a new clinker cooler concentrated on the requirements specified by the market: ● high-performance ● compact ● low-wear ● flexible application ● favourably priced and ● easy to maintain.

And POLYTRACK®, the resulting new cooler generation, provides a range of advantages that fully correspond to the highly complex requirement profile. Numerous innovative process and design details make the POLYTRACK® a future-oriented solution from both the mechanical and the process technological points of view.

POLYTRACK® advantages at a glance

The POLYTRACK®, a combination of static, horizontal aeration floor and above-floor transporting system, offers – on the basis of its extremely efficient clinker transporting principle and strict separation of transportation and aeration functions – the following compelling advantages:

- ideal transverse distribution of the clinker, resulting in uniform, efficient cooling of all grain size fractions over the entire width of the cooler,
- extremely low construction height,
- very high thermal efficiency,
- a robust, low-wear and easy to maintain construction, with resultant outstanding availability and
- a consistent modular design.



The variable stroke speeds of the transport tracks cause an optimum transverse distribution of the clinker over the entire width of the cooler, which even compensates for non-central clinker discharge from the kiln and reliably prevents clinker fritting.

The clinker transporting principle – providing the push for success

The clinker transporting system – a unique feature of this clinker cooler – is extremely effective:

Above the static aeration floor, transport tracks are arranged in line with the direction of clinker conveyance. The rows of transport tracks are positioned a certain distance from each other, with the aeration elements for blowing cooling air into the clinker bed located between them. The number of transport track rows is determined by the required width of the cooler. Every row of transport tracks runs the entire length of the cooler.

To convey the clinker, the transport tracks move forward together and then move backward individually.

By varying the transport stroke length and frequency the conveying speed of the clinker bed and thus the clinker bed depth and clinker throughput are optimally controlled over the entire width of the cooler. Implemented for the first time in a clinker cooler, this solution provides the best pre-conditions for consistent and uniform cooling of all grain size fractions.

The clinker is transported by the synchronised forward movement of all the transport tracks.

The air blast units installed between the grate steps of the static primary grate enable highly-effective elimination of snowman at the specific points where they form.

Intermediate crusher concept

Thanks to the highly effective clinker transporting principle there is no need for sloping cooler grates. Due to its horizontal construction, the POLYTRACK® has an extremely low overall height. This results in enormous capital cost savings (for the cooler itself and, as a result, also for the rotary kiln and preheater) and allows installation even under space conditions which hitherto ruled out the placement of conventional coolers - e.g. in the case of plant conversions. Even with limited installation heights, it is possible to install a roll crusher as intermediate crusher and thus intensify the cooling.

Aeration concept

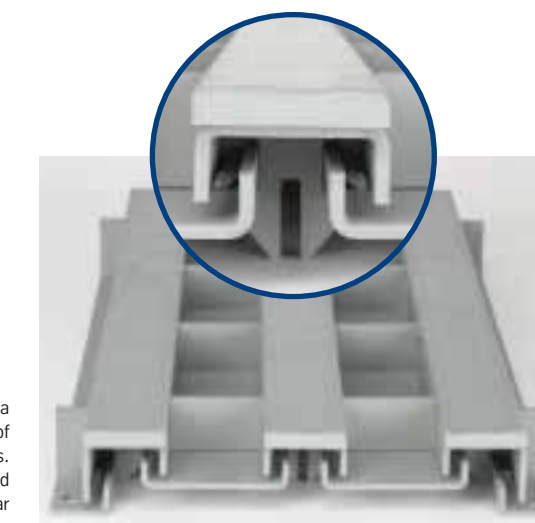
As the wear suffered by one component must not affect the efficiency and throughput of the machine (an essential requirement of the market), the POLYTRACK® was so designed that the functions »transporting the clinker bed« and »distributing the cooling air in the clinker bed« are strictly separated.

The air is distributed by static aeration elements that are located between the transport tracks. Large boxes integrated into the aeration elements are permanently filled with clinker and thus provide autogenous wear protection. Thanks to their design and robust construction, the transport tracks suffer minimal wear, and what wear occurs has no influence on the aeration of the clinker bed.

Sealing concept

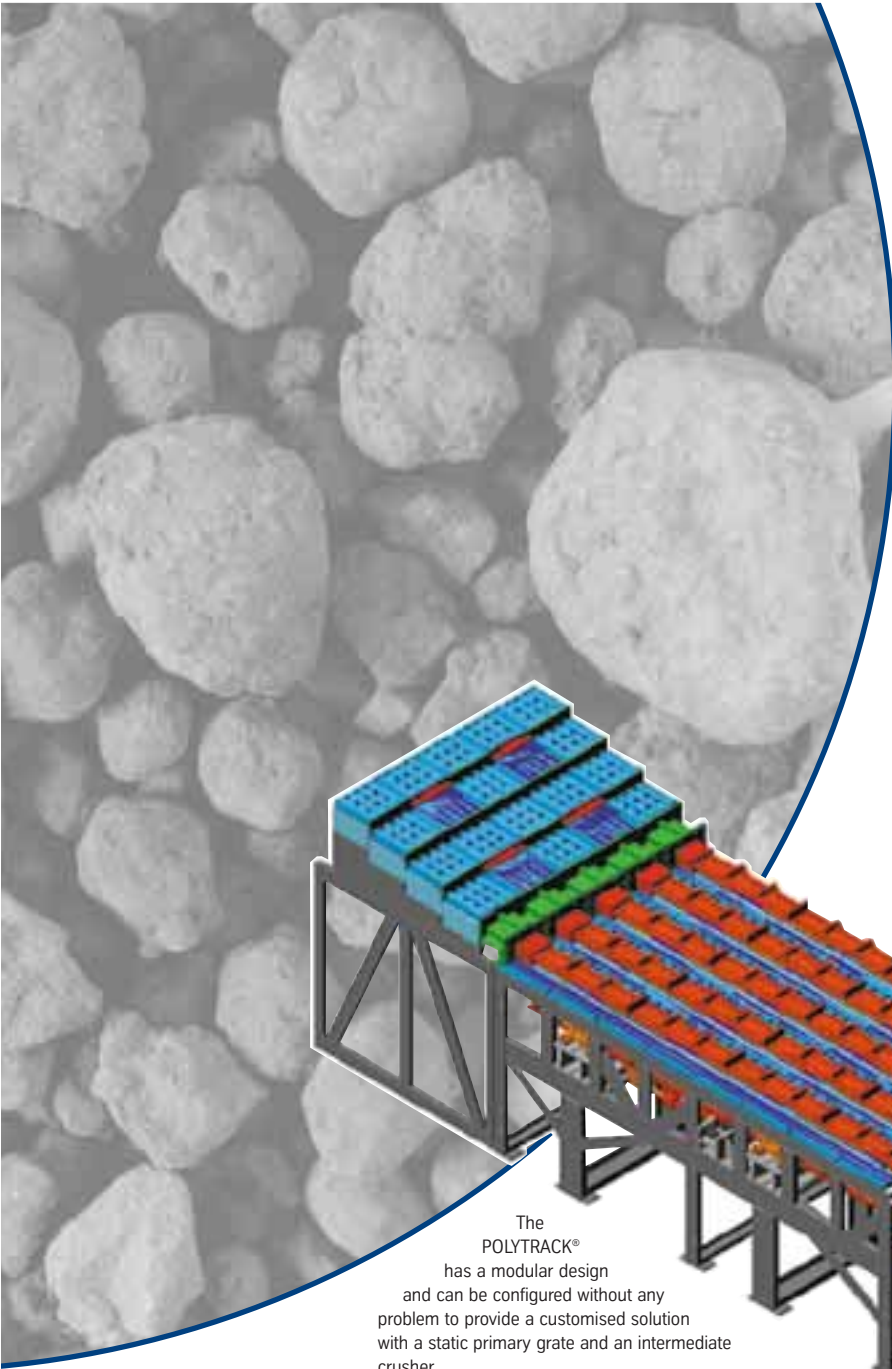
Special, sliding element pairs reliably seal the few contact zones between the static and the moving cooler components. As a result, no clinker can fall through the aeration floor. This does away with the need for wear-intensive grate riddlings conveyors – which is another crucial factor in reducing the construction height.

The air is distributed via the labyrinth construction of the static aeration elements. Clinker collects in the boxes and provides autogenous wear protection.





Completely preassembled POLYTRACK® modules in the manufacturing shop.



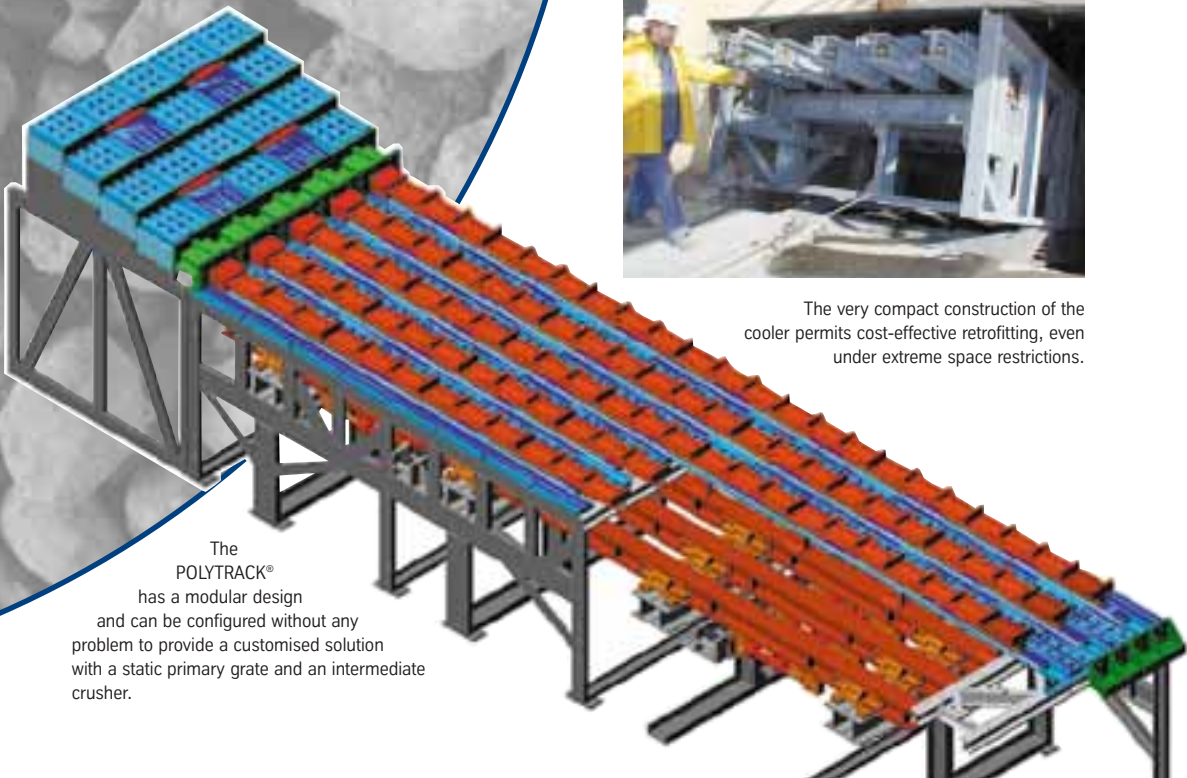
Modular concept

Thanks to its modular design, the POLYTRACK® cooler is an extremely flexible solution for both new plants and conversion retrofittings. The modules are 2.4 m and 4.8 m long and 1.5 m/2.0 m and 2.5 m wide, so that appropriate module combination permits straight-forward adaptation of the cooler length and width to different throughput rates.

The modules are preassembled in the manufacturing shop. This ensures optimum alignment of the clinker transport and aeration elements, thus saving a significant amount of work during assembly on the plant site and providing the important benefit of short installation, commissioning and – in the case of conversions – plant stoppage times.



The very compact construction of the cooler permits cost-effective retrofitting, even under extreme space restrictions.



The POLYTRACK® has a modular design and can be configured without any problem to provide a customised solution with a static primary grate and an intermediate crusher.