

# Anlagentechnik

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## Travelling Hoist Gear for Core Sand Transport



**Schwerter Str. 200  
D-58099 Hagen  
Germany**

**Tel.: +49 (0)2331 968000  
Fax: +49 (0)2331 968018  
[info@Klann-Anlagentechnik.de](mailto:info@Klann-Anlagentechnik.de)  
[www.Klann-Anlagentechnik.de](http://www.Klann-Anlagentechnik.de)**



Beside homogenous mixing of core sand, adequate transport to the core shooters is one of the main requirements needed to achieve an optimum core quality in the cast shop.

The conveying system has to fulfil the following requirements for core sand transport:

- No demixing of the bulk material during transport
- No grain destruction and dust production by mechanical stress during transport
- Minimization of air contact to avoid chemical reactions of the binder
- Avoidance of material compaction
- Low transport time between mixing and core shooting
- Batch transport to assure uniform transport times

Experience has shown that conventional conveyors like screws, belts or chain conveyors have a negative influence on the core sand mixture.



Pic. 1: Core sand feed by hoist gear system (arrow) to core shooters

These conventional conveyors should be avoided if the core quality is to fulfil high quality requirements. Especially if several core shooters have to be supplied or longer distances have to be covered.

The shown requirements are met by the KLANN travelling hoist gear transport system.

### Design:

As the base unit a travelling hoist gear (crab) with an electrical drive is used, which is combined with an additional chain hoist in case vertical transport is also needed. On this hoist a bucket for the material transport is fixed.

The introduction of the bulk material into the bucket is done from above and either discharged with a flap on the bottom of the bucket or by tilting the bucket. The bucket volume depends on the batch mixer used for the core sand.

These hoist gear systems are available in different designs, which can be as following:

- The bucket is fixed at a chain hoist and is guided in a vertical double track. The mixture is fed into the bucket from above when in the lowered position. The bucket is lifted by the chain hoist and, in the raised position, is then carried by the travelling hoist gear to the different discharge positions above the core shooters.



Pic. 2: Bucket with chain hoist in lowered charging position beside the mixer

- Hoist gear with two buckets i.e. for two different core sand processes. The buckets are filled from an upper mixer level, no vertical transport is needed. The bucket travels to the discharge position above the core shooter and opens a lower flap.



Pic. 3: Hoist gear with two buckets, charging from an upper mixer level

- Hoist gear with bucket in flat design for operation in narrow installations.



Pic.4: Hoist gear with bucket in flat design

All the systems shown can operate fully automated. The transfer from vertical to horizontal transport is done without interruption; inclined transport is also possible.

The use of standard equipment of the DEMAG crane product program assures a simple and cost effective design and easy maintenance of the hoist system.



Pic 5: Transfer point from horizontal to vertical bucket transport

Standard technical data for the hoist transport system are:

Bucket volume:	5 – 200 Litre
Travelling speed:	max. 50 m/min.
Capacity:	0.5 – 4 t/hr.

The KLANN travelling hoist system has already proved its reliability over a wide range of applications in several installations. Typical applications are the transport of smaller quantities of bulk material like components over long distances in existing installations. A distribution of the material to different consumer points is easily achieved.

Also available from **KLANN Anlagentechnik** for the casting industry:

- Turn-key core shops
- Standard core shooters
- Core belters
- Core sand mixers/preparation plants
- Binder dosing systems
- Drum and container storage facilities for binders
- Core residue recycling units
- Silo storage- and dosing systems
- Sand dedusters and coolers
- Pneumatic conveyors
- Automation and Control Systems
- Core handling/robot equipment