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Highly effective and versatile compaction system

Optimum compaction of the concrete is of vital importance for the quality of a precast concrete element. In order for the precast element to have the required strength and other properties desired by the designer, the concrete must be mechanically compacted. The quality of the precast concrete element therefore also depends on the selection of suitable compaction technology.

The compaction method chosen - high-frequency or low-frequency technology - depends on the consistency of the concrete used. It is always a matter of driving entrapped air and excess water out of the concrete by means of applied vibration energy. The unwanted cavities in the interior or on the surface of the precast element are caused by air voids in newly poured concrete and are called bugholes. When vibrating, it is essential not to compact too powerfully or briefly. If compaction is too brief, the cavities are not filled completely, but if compaction lasts too long or is too powerful, unwanted segregation can occur in soft concrete types. So it becomes apparent that the quality of precast concrete elements is also dependent on the selection of suitable compaction technology.

MagVib compactors: efficient and high-frequency

With the MagVib technology developed by Weckenmann, high-frequency vibrators are magnetically locked or clamped to the formwork pallets or moulds for compaction.

When used in circulation in conjunction with formwork pallets, vibrating plates are mounted on the underside of the formwork pallets. In the compaction station, the mounted external vibrators are non-positively docked to the vibrating plates by means of electromagnets. The high-frequency vibrators shake the pallet with directed vertical vibrations. In the MagVib technology, the so-called vibration energy has a very short path to the precast concrete element and is distributed uniformly across the pallet.

Depending on the concrete consistency, the speed can be continuously adjusted by means of inverters and the vibration duration can be varied.

MagVib technology brings a significant increase in efficiency for high-frequency compaction of concrete in formwork pal-



MagVib compaction station - used in new plant



Combined shaking and vibrating station



SECURE

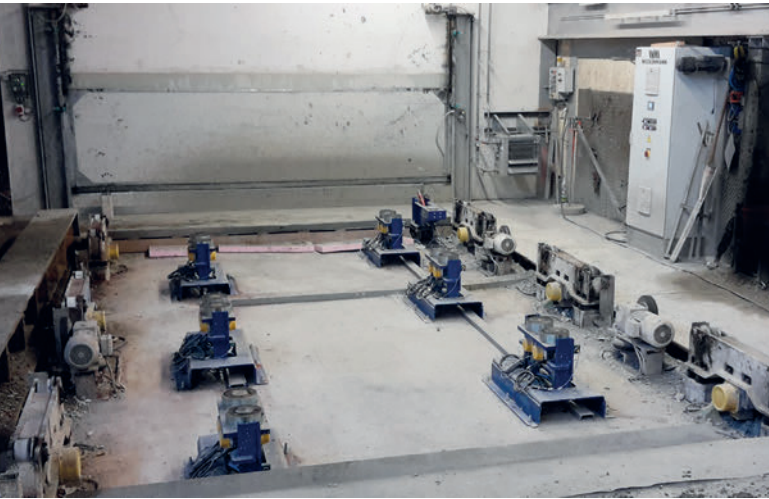
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CONSTRUCTING THE FUTURE

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Vibrating station converted to MagVib



MagVib in point sleeper production

lets; at the same time, the noise level is reduced by around 10 to 15 dB(A).

The use of the technology can also be combined: The MagVib systems can be installed in vibration stations. In this way, the respective advantages of high or low frequency compaction can be combined. A wide range of concrete consistencies can be compacted in this way.

Conversion to MagVib is possible at any time

MagVib technology can be used not only for new planning. It can also be used in modernisation projects. Less energy is required to compact the concrete than is necessary with comparable stationary vibrating trestles, as no additional mass has to be moved. In addition, the use of the MagVib compactors also has a positive effect on the noise level - a real contribution to occupational health and safety and not least to increasing employee satisfaction.

Can also be used in the production of railway sleepers

MagVib technology has also found its way into sleeper production. Recently, Weckenmann successfully implemented a system in a point sleeper production. The system is the same as for flat precast concrete elements that are produced on pallets in a circulation process: The sleeper mould is placed in the compaction position under the concrete spreader. The magnet/vibrator units are docked directly to the point sleeper mould with the aid of pneumatic lifting cylinders. Then the electromagnets are switched on and the vibrators are activated.

The complete point sleeper mould is vibrated and compacted during concreting. Due to the relatively low noise development, it was possible to dispense with an otherwise usual noise protection chamber. The direct and effective application of vibration energy is also a gentler process, as the

MagVib - advantages at a glance:

- Direct short path of the vibration energy into the precast concrete element, thus improved quality.
- More efficient and gentle than previous compaction systems
- Noise level reduction of more than 10 dB(A) possible
- Energy saving compared to conventional vibrating trestles
- Retrofitting and conversion of conventional technology possible

mould is not subjected to as much stress as with the usual compaction technology. Conventional systems that compact the sleeper mould on vibrating trestles, e.g. by shock compaction, place a comparatively high load on the mould.

The sleeper mould has a longer service life when using MagVib technology. The energy consumption is also lower compared to the previously used technology - a real contribution to sustainability in the precast plant and, incidentally, also an advantage for the wallet. ■

FURTHER INFORMATION



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