



VSM33000: A NEW DIMENSION FOR VERTICAL SHAFTS.

- Procedure: Mechanized sinking of vertical shafts
- Equipment: VSM33000 Shaft Sinking Machine
- Area of application: Shafts for subway stations, underground garages with automated parking systems
- Diameter: 23,000 to 27,000 and 28,000 to 33,000mm
- Aim: Low impact on urban life by reducing the space required for aboveground construction site installations

HERRENKNECHT



Tunnelling Systems



GOING RIGHT DOWN DEEP.

REQUIREMENT

VERTICAL SHAFT SINKING



Aim: low impact on urban life by reducing the space required for aboveground construction site installations

Area of application: inner cities with heterogeneous construction grounds and groundwater

Handling of high earth and water pressures

Fields of application:
 underground garages
 subway stations
 ventilation shafts
 access shafts
 sewage shafts
 launch shafts for tunnel boring machines

Diameter > 23,000mm

Large cities and mega city are growing in size, almost everywhere in the world. And along with them, the demands placed on urban infrastructures are also increasing. That is why both local public transport systems and parking garages are increasingly going underground. However, until now, constructing subway stations and underground parking garages has been connected with considerable problems. On the one hand, construction sites require space, but on the other hand, the traffic routes concerned cannot simply be closed. Constructing shafts using drill and blast, as well as excavators, or caissons – with all the surface impacts these methods involve – result in high financial costs.



- 1 Sinking unit
- 2 Main beam
- 3 Pipeline to separation plant
- 4 Telescopic beam
- 5 Cutting edge



WITH SUCCESS.

SOLUTION

VSM33000

Shaft sinking machine for the sinking of vertical shafts

Diameter: 23,000 to 27,000mm and 28,000 to 33,000mm

Number of roadheaders: 2

Lining: site-mixed concrete, precast concrete segments

Reduced space requirements for aboveground construction site installations

No major disturbances to traffic due to coverable shaft

Can handle all construction grounds, such as soft grounds with or without groundwater and hard rock

Saves time with mechanized construction method and optimized construction site logistics

Preserves human resources

Increases working safety with mechanized processes

Quieter construction site conditions thanks to shaft construction with low noise and vibration levels

High extent of precision through control and measurement

Transport of excavated material to a separation plant via a slurry circuit

The Herrenknecht VSM33000 Shaft Sinking Machine allows the sinking of large shafts even under space constraints. As the shaft diameter gets larger and the shaft depth increases, the economic advantages of the VSM concept also increase in comparison to conventional construction methods. The VSM Unit is fixed to the ground surface with stabilizers and extendable bars (1). During drilling, the telescopic beams (4) of both roadheaders are swung out over the

shaft ground. The excavated soil is fed into a separation plant via a slurry circuit (3). When the desired depth has been reached, the main beam (2) is turned a further 120° in the shaft and drilling continues.

The cutting heads are equipped with roundshank bits and enables the VSM to be used in varied geologies. After the completion of the shaft construction work, the VSM can be recovered and used in the next shaft project.





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Herrenknecht AG is a technology and market leader in mechanized tunnelling. As the only provider of a full range of services worldwide, Herrenknecht delivers high-tech tunnel boring machines for all ground conditions and with all diameters – ranging from 0.10 to more than 16.0 meters.

Herrenknecht's tailor-made machines create pipeline systems for water and sewage, for gas and oil (Utility Tunnelling) as well as tunnelling systems for car, metro and railway traffic (Traffic Tunnelling) around the world. Our tunnel boring machines are forging ahead with the world's longest railway tunnel and the largest metro lines. They help to cross under water with supreme accuracy and to lay pipelines throughout continents.

Herrenknecht sees itself as a partner in teamwork tunnelling throughout the entire project. Comprehensive services for all aspects of tunnel boring activities complement our range.

The Herrenknecht Group employs more than 1,800 people and has 36 subsidiaries and associated companies working in related fields, e.g. in logistic solutions or deep drilling systems.

Herrenknecht AG
D-77963 Schwanau
Phone + 49 7824 302-0
Fax + 49 7824 34 03
pr@herrenknecht.com

