

# THE DEEP FOUNDATION SPECIALIST

## Why Kuipers Funderingstechnieken BV should be your deep foundation specialist!:

- ✦ Flexible and responsive organisation
- ✦ Reliable partner who thinks things through with you
- ✦ Many years of experience: since 1978
- ✦ Professional and enthusiastic staff
- ✦ Well-proven piling system
- ✦ Competitive and clear quotations
- ✦ Versatile products and services
- ✦ State-of-the-art and well-maintained equipment
- ✦ VCA\* safety certified since 1999
- ✦ ISO 9001 quality certified since 2001
- ✦ LEF recognised Dutch foundation contractor since 2007
- ✦ Our word is our bond!



Our vibro-piles are extremely suitable for a large variety of soil conditions, for which the pile length can be adapted to the supporting capacity of the subsoil. This avoids risks of having piles too long or too short.

Steel tubular piles with a footplate attached to the bottom end can be driven through thick sand strata. After the vibro-tube has reached the correct depth, the inside of the tube is filled with concrete. Subsequently the tube is pulled out and vibrated to shake down the concrete. The counterweight of the pile-driving hammer creates a vibrating effect that results in improving the compactness of the concrete and pushing it firmly against the substrata. This creates the best possible bonding.

With this foundation method, the concrete pile displaces soil. This means no soil is pushed to the surface.

A major benefit is that the diameter, length and number of piles can be adjusted until shortly before the piling operation starts. The maximum pile length is 35 metres.

By varying the diameter of the pile shaft, the pile loading can be adjusted. Reinforcement over the full length of the pile is also possible. This makes vibro-piles very suitable for high vertical pile loads and tensile strengths.

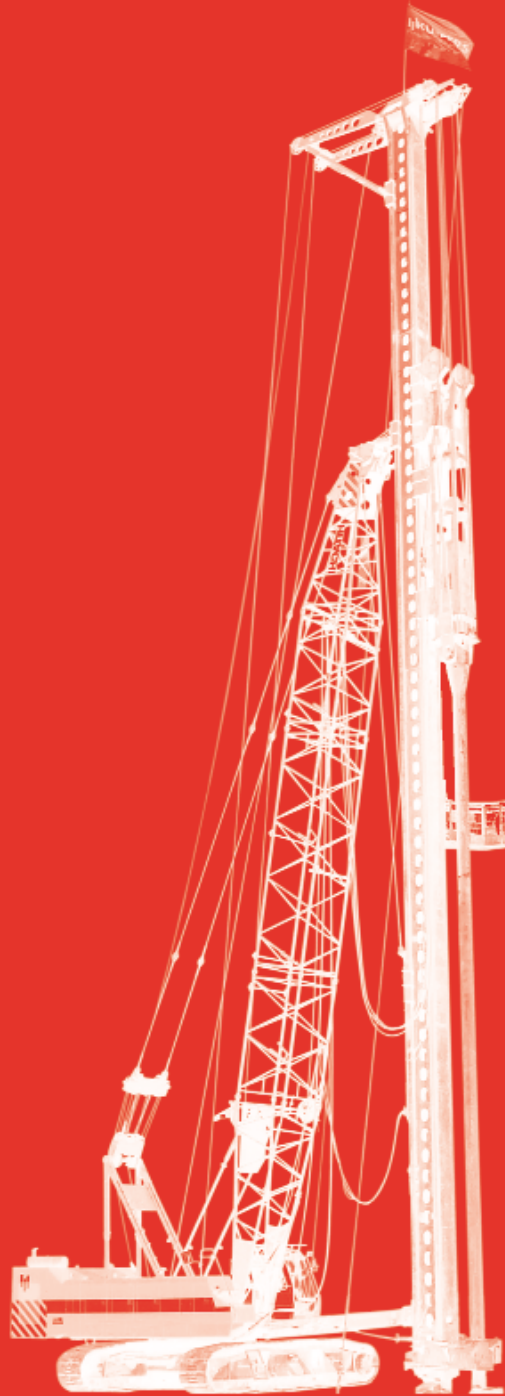
As a result of the construction method, pile trimming is usually unnecessary. After they have been constructed, all the piles can be checked using acoustic testing.

Another major benefit of vibro-piles is the short lead time, which means the pile driving can be started at short notice.

If necessary, noise nuisance can be further limited by using an IHC type of sound muffler.

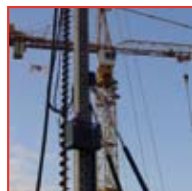
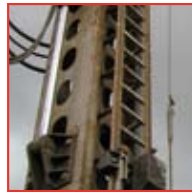


**DUTCH**  
FOUNDATIONS



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# COMPANY INFORMATION

Jochum Kuipers established his own excavator rental company in 1963. Nine years later, the company passed into the hands of his two sons: the Kuipers family business was started. Very soon excavators were converted and equipped with pile-driving hammers. Pile-driving activities were commenced.

At the beginning of the 1990s, bored piles were added, and vibro-piles were also introduced in the range at the start of the new century. To this very day, these three pile systems form the foundations of our business...

Our own engineering department also takes care of the conversion of pile systems, required reinforcement and strength calculations, testing of piles and load tests.

We consider continuous care for quality and safety to be of paramount importance. For this reason, we have been a VCA safety certified contractor since 1999 and have had ISO certification since 2001. We have also been members of the NVAF (Dutch association of foundation contractors) for many years.

In our well-equipped workshops we are occupied every day with maintenance of our equipment and construction of new equipment and concrete pumps. We also produce our own leaders, power packs, head constructions and other equipment. We can make our equipment in the way we want it! This makes our technical services department a very important part of our company. Besides new construction projects, a lot of attention is also paid to continuous improvement of existing equipment and preventive maintenance of all our approved machines and resources. Everything is designed to help us work as innovatively as we can and avoid unplanned stoppages!

In this context, of course, the correct construction recommendations, proper work planning, managed implementation and accurate subsequent inspection, make the application of the foundation piles from Kuipers Funderingstechnieken BV a fundamentally good method for building foundations!



## DISPLACEMENT PILES

The application of prefabricated displacement piles is still the best known and most used method for foundations in the Netherlands. This is, for example, an extremely suitable method for laying foundations on large new construction sites. However, the application of prefabricated piles does cause noise and vibration nuisance.

The system of prefabricated piles is a so-called earth-displacement method. This means that no soil is dug out

Generally, prefabricated piles can bear high vertical pile loads and tensile loads. They are deliverable up to lengths of 36 metres with a cross section up to 500 by 500 millimetres. Adapting pile lengths during the work is usually not possible. Depending on the pile type, however, prop piles are possible to a maximum of 5 to 1.

While driving-in prefabricated concrete piles, the assessed substrata composition can be verified. Depending on the substrata condition, prefabricated piles can be driven in to the correct height. Hence pile trimming is usually unnecessary.

Longer piles are pre-tensioned and reinforced with pre-stressed steel. For tension and momentum, additional traditional reinforcement can be added. All piles are supplied with an accompanying KOMO certificate, guaranteeing the quality of construction materials.



# TRANSPORT AND LOGISTICS

To transport our heavy equipment over large distances we make frequently use of our deep-loader combination. Frequently transport capacity is rented.

Our machines weigh between 35 and 140 tonnes and measure between 3 and 4.5m in width. Therefore they are always exceptional transports. This means that a variety of permits and dispensations are required. The piling machines must even be transported with special escorts.

It goes without saying that, before the start of a project, our planning staff carefully examine which measures are necessary for proper transport of the equipment. Together with the client, the situation is discussed and , if necessary, appropriate action is taken.

Subsequently our experienced and well-trained drivers can transport the equipment at the right time, to the right site, unload the machinery and set up the equipment ready for the start of the next successful project!

Besides attention for equipment transportation, care is taken for prompt delivery of piles and vibro-tubes. Transport is also arranged for other materials required for the work, such as reinforcement and concrete, in accordance with the schedule.

This means thousands of transport movements take place every year. This logistics process is fully coordinated from our Lemmer office.



# OTHER SERVICES

In order to make a festive occasion of a first pile, we have an antique manual pile-driving rig available. As many as 8 people can be invited to simultaneously drive in the first official pile. Naturally, a modern pile-driving rig can also be used to drive the first pile.

The acoustic testing of our piles is performed by an experienced independent company. Measuring signals from these pile checks are shown digitally and recorded. After processing these measurements, a report is produced containing a definite conclusion on the quality of the measured pile. Any discontinuities such as bulges, cracks or narrowings are thus identified in good time. Testing provides additional assurance!

We can also take care of the pile trimming of all our piles for you. A hydraulic cutter can be used to remove the reinforcement from every height to a maximum of 2 centimetres above the ground. The main and head reinforcement are not damaged by this. If necessary, manual trimming can also be performed. In this case, various measures are taken to prevent the pile from cracking.

Enforcement and load calculations can be made by utilising the analysis and interpretation of geotechnical data. Furthermore one piling system can be substituted by another system if this has for example a shorter lead time, better meets the permit requirements or full fills the wishes of the (permit) authorities.



## BORED PILES

The bored pile, also called a twist-drill pile, is a concrete pile constructed in the ground. Upon completion the concrete pile is at correct height with a reinforced head.

In particular in projects where vibrations and noise nuisance must be kept to a minimum, for example, in old town centres, near hospitals and electricity switch boxes, our bored piles make an ideal foundation system. Also, where we must drive through very solid ground and substrata.

With the piling operations, a hollow pile with a flap closing its bottom end is rotated into the ground to the correct pre-determined depth.

Subsequently, the hollow pile is filled with concrete and slowly drawn up without rotating it, whilst the hole fills evenly with concrete and the top of the pile is at surface level. The drilled-up soil up is removed with a mini excavator. Afterwards, the reinforcement is positioned. Pile trimming is usually unnecessary with this system. If required the length and diameter of the pile can be adapted during the work.

For long bored piles a reinforcement cage over its entire length is practically impossible, but this can be compensated for by a centre rod.

Bored piles are also excellent for use as tension piles. To this end, the pile needs to have its entire length equipped with a rod of 25 to 40 millimetres in diameter.

Bored piles made with concrete quality of C20/25 or C28/35 can bear vertical pile loads from 200 to a maximum of 2000 kilo Newton .

Our bored piles can also be excellently applied as earth-retaining partitions or pile walls by positioning the piles with very little intervening space or even at offsets. In addition, it is possible to work with these piles as props up to 4 to 1.

This foundation technique is not suitable for areas with over-pressured groundwater layers.