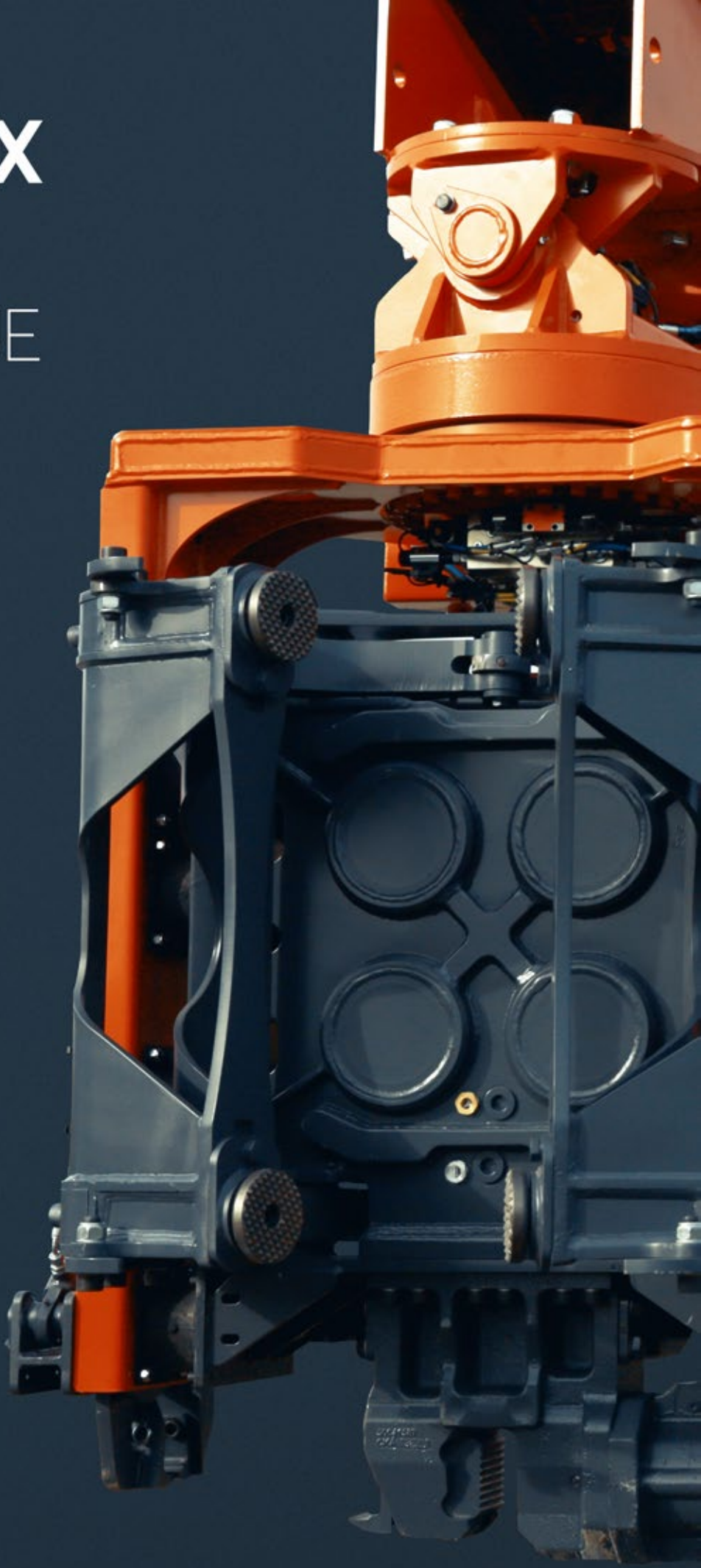
MOVAX

PRODUCT CATALOGUE 2025



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WWW.MOVAX.COM

total solution for PILING & FOUNDATION

CIVIL

ROAD

RAIL

UTILITIES

ENERGY & ENVIRONMENT

PIERS & WATERWAYS

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MOVAX

HIGHER PRODUCTIVITY – SIGNIFICANT SAVINGS

INTRODUCTION

Movax Oy, established in 1993, is a Finnish-based, privately-owned world-leading innovator, developer and manufacturer of excavator-mounted piling and foundation equipment with highly advanced automatic control systems and information management solutions.

Movax Oy is the inventor of the modular, vibratory side grip pile driver technology. Movax Oy's inventions have resulted in numerous patents (50+) and its trademark, MOVAX®, is registered and well known for the quality it represents all over the world.

Movax Oy is strongly committed to continuously develop its products and services in close cooperation with its customers and local partners.

MAJOR MILESTONES

1993
Established in Hämeenlinna, Finland

1994
1st side grip pile driver

1996-1997
1st auto-steering for hydraulic excavator

2006
Terra Patris Group main owner

New factory in Hämeenlinna

2009
ISO 9001 certificate

2011
New generation modular side grip (SG) pile driver

2012
Resonance-free side grip pile driver

2014
Introduction of new generation MCS Lite & Pro Control Systems

2015
1st DH piling hammers

1000th delivery

A TOTAL SOLUTION.

Movax Oy focuses solely on solutions for the piling & foundation industry. The comprehensive range of excavator-mounted piling & foundation equipment and customized solutions cover a complete range of piling technologies - including both driven and bored piles.

UNIQUE, VALUE-ADDING TECHNOLOGY.

Movax Oy's piling and foundation equipment provide the optimum way-of-working - MOVAX WAY-OF-PILING™ - when constructing foundations, building retaining walls, both temporary and permanent, cofferdams and when performing trenching and excavation work and soil stabilisation in a wide range of applications.

GLOBALLY LOCAL CUSTOMER CARE.

Movax Oy focuses on superior customer service and support together with a world-wide network of local partners, established in more than 30 countries all over the world.

GLOBALLY PROVEN.

With more than 30 years of experience and more than 3000 units delivered to all over the world, MOVAX has a deep understanding and know-how of varying site and soil conditions - and of all kinds of different type of excavators and rail roaders.

Movax Oy's experience also covers a wide range of applications ranging from Rail, Road and Civil to Waterways & Piers, Utilities and Environmental & Energy.

QUALITY BUILT-TO-LAST.

MOVAX is made with high-class materials, equipment and components – and modern, state-of-the-art production technologies ensuring the highest possible quality - and availability.

Movax Oy's Quality Management Systems is certified in accordance with ISO 9001; and MOVAX Oy's products with the CE and UKCA marking.

MOVAX way-of-piling™

Higher productivity – Significant savings
fast. efficient. versatile. safe. accurate. reliable.

2017
1st MPM manipulator

2019
MCS for electronically controlled excavators

MOVAX Information Management System with mLogbook™ and mFleetManagement™

1st KB kelly-bar piling drill

1st MPL multi-tool piling leader with pre-auger rotary drive

2020
1st MPL Multi-tool piling leader with CFA rotary drive

2021
1st MPL-multi-tool piling leader with TG vibratory pile driver

MCS with CAN bus control

KB kelly bar piling drill with 20 m drilling depth

2022
Introduction of next generation mControl+™ Control System with autoT™ (tip control)

1st MPL-multi tool piling leader with DTH

2023
Introduction of nextGeneration side grip pile driver with variable active moment, SG-80VA

Introduction of side grip pile driver for photovoltaic (solar) power plants/o-, H-, sigma- and c-profiles, SGL-15

2024
Variable active side grip pile drivers SG-45VA, SG-50VA & SG-65VA

INTRODUCTION

PILING & FOUNDATION EQUIPMENT

MOVAX excavator mounted piling equipment are available for different piling technologies, including driven and bored piles, for varying conditions and requirements and for all kinds of piles including sheet piles, H-beams, tubular steel piles, timber piles - and for cast-in-situ, concrete piling.

SIDE GRIP PILE DRIVERS

SIDE GRIP PILE DRIVERS (SG) are the optimum solution for a wide range of piling requirements and a variety of site and soil conditions – especially when a high-degree of precision is required, and for piling in sensitive environments and when limited space or access is available.

The same unit can handle, pitch and drive piles and is capable of accomplishing the whole process without the need of manual handling or assisting machinery.

PILING HAMMERS

Piling hammers (DH) are utilised to drive load-bearing piles and to assist in sheet pile driving, even in the most difficult soil conditions.

MOVAX piling hammers are the optimum solution to complete a pile installation after reaching refusal with a side grip pile driver or when load testing is required.

The piling hammers can be mounted directly onto the excavator, onto MOVAX Multi-tool piling leader, or a third-party piling rig or crane.

PILING DRILLS

Piling drills (TAD/KB) are designed for cast in-situ and other earth-removal tasks; and the KB-model also for cased drilling.

MOVAX piling drills are especially suitable for sites with confined spaces and when limited space or headroom is available.

MANIPULATORS

Manipulators (MPM) are designed for fast, flexible and efficient handling of different kinds of masts, gantries, and poles as well as a wide range of piles. Soft gripping surfaces are available to prevent damage of sensitive surfaces or coatings.

The MOVAX manipulator is designed for superior maneuverability, safety, precision and accuracy.

CONTROL

The **MOVAX Control System (mControl+)** links the excavator with MOVAX's piling equipment. The system controls the auxiliary hydraulics of the excavator and all the functions of MOVAX's piling equipment.

The control system is a vital - *and integral* - part of the MOVAX way-of-piling ensuring the highest possible production rates and quality of installation.

INFORMATION

MOVAX Information Management System (MIMS) provides essential information about the piling process/pile installation and about the MOVAX piling equipment itself.

mLogbook provides a tool to efficiently monitor and report the piling works saving both time and cost - whereas mFleetManagement is utilised to monitor the Movax piling equipment and thus ensuring maximum availability.

INTRODUCTION

CUSTOMISED SOLUTIONS

MOVAX customised solutions include Multi-tool piling leaders for a wide range of piling and foundation requirements and Column stabilisation leaders for soil improvement.

Excavator mounted MOVAX Multi-tool piling leaders are available with a wide range of tooling for driven, bored and drilled piles - and for varying site and soil conditions. Excavator mounted MOVAX Column stabilisation leaders are suitable for dry binder material.

MULTI-TOOL PILING LEADERS

MOVAX Multi-tool piling leaders are a multi-purpose piling leaders designed for medium to large size excavators. Tooling alternatives include vibratory pile drivers (for instance for stone columns), hydraulic impact type hammers, hydraulic hammers (rock breakers) and rotary drives for pre-augering, CFA (continuous flight auger) and DTH (down-the-hole) piling.

CONTROL

The **MOVAX Control System (mControl+)** links the excavator with MOVAX's customised solutions. The system controls the auxiliary hydraulics of the excavator and all the functions of MOVAX's multi-tool piling leader and its tooling; and the column stabilisation leader.

The control system is a vital - *and integral* - part of the MOVAX way-of-piling ensuring the highest possible production rates and quality of installation.

INFORMATION MANAGEMENT

MOVAX Information Management System (MIMS) provides essential information about the piling process/pile installation and about the multi-tool piling leader and its tooling; and the column stabilisation leader.

mLogbook provides a tool to efficiently monitor and report the piling works saving both time and cost - whereas mFleetManagement is utilised to monitor the Movax piling equipment and thus ensuring maximum availability.

SOIL IMPROVEMENT LEADERS

MOVAX Column Stabilisation Leaders are designed for dry binder material and operated with medium to large size excavators as the carrier.

SOLUTIONS

RAIL

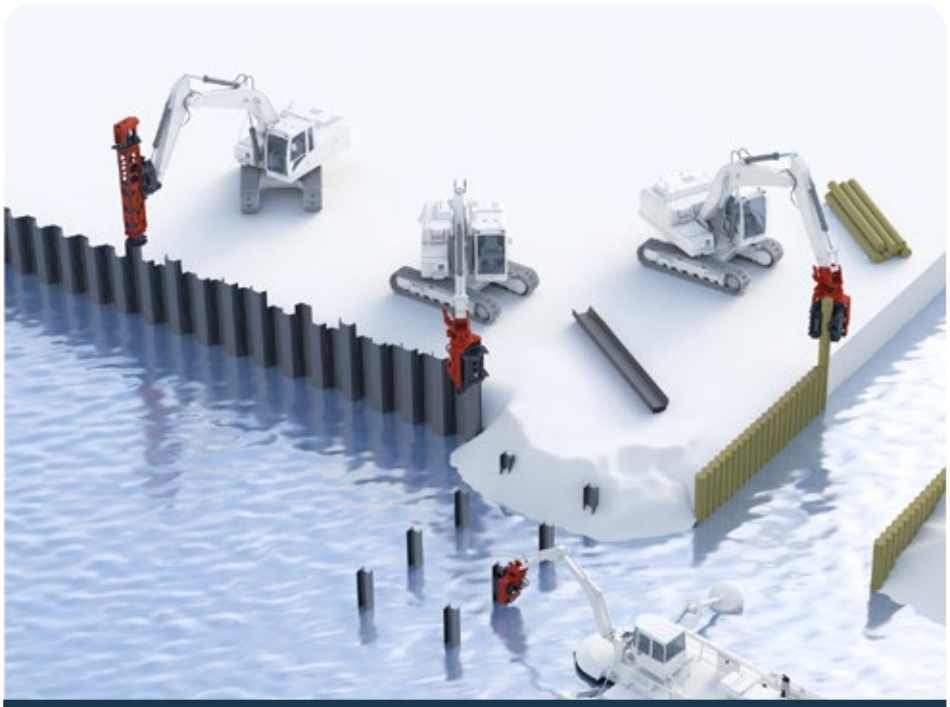
ROAD

UTILITIES

ENERGY & E
incl. SOLAR

CIVIL

ENVIRONMENT



PIERS & WATERWAYS

INTRODUCTION

SIDE GRIP TECHNOLOGY

MOVAX Side grip pile drivers are excavator-mounted, high-frequency, vibratory-type pile drivers providing the optimum solution for a wide range of piling requirements – especially when a high degree of precision is required; and for piling in sensitive environments and when limited space, head room or access is available.

HANDLING

HIGHER PRODUCTIVITY – SIGNIFICANT SAVINGS

Efficient. Fast. Versatile. Accurate. Safe. Reliable.

The same unit can handle, pitch and drive – and extract – different type of piles and is capable of accomplishing the entire piling process without the need of manual handling or assisting machinery. Furthermore there is no need for additional work, material and tools.

MOVAX mControl+ control system ensures a fast, efficient, accurate and safe pile driving process leading to higher productivity and quality.

PITCHING

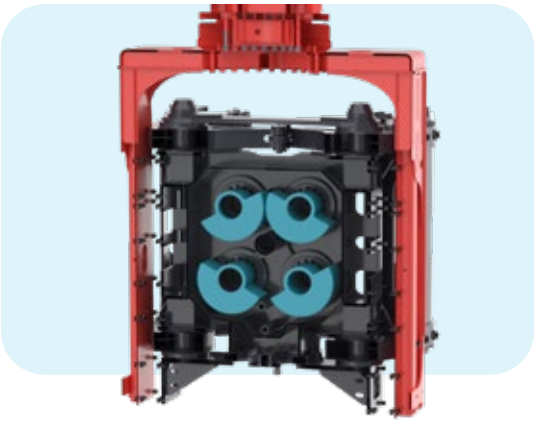
DRIVING/EXTRACTING

INTRODUCTION

VIBRATORY PILE DRIVER TECHNOLOGY

Vibratory pile drivers work by reducing the resistance and formation of the ground by the means of vibration. Vertical vibrations are transferred from the vibratory pile driver to the pile via a hydraulic arm or clamp (gripping the pile).

The vibration then travels from the pile to the soil, thus reducing the friction between the pile and the ground allowing the pile to be driven or extracted with less force. The pile is driven to the ground by a combination of the vibrator's weight, centrifugal force it produces and the downward force put out by the excavator.



The nature of vibration is to move through matter - everything has it's natural resonance, i.e. the frequency in which they have a tendency to vibrate and oscillate. In order to avoid oscillation and thus disturbances to the surroundings, including the ground itself, buildings and structures, it is recommendable to avoid vibrating at natural frequencies.

Vibratory pile drivers are designed for operation at either a high frequency (HF) typically above 33 Hz/2300 rpm or at a low frequency (LF) typically below 24 Hz/1700 rpm.

MOVAX side grip vibratory pile drivers

MOVAX invented the side grip technology in 1993. Since the first fixed eccentric model designed primarily to handle and drive sheet piles the MOVAX side grip pile driver have over the years developed to a versatile modular design side grip pile driver capable of handling a wide range of different type of piles from sheet piles and H-beams to tubular steel piles, trench sheets and timber piles. The resonance-free technology was introduced to allow operation in sensitive conditions.

The nextGeneration, variable active, side grip pile driver introduced in 2023 takes the technology yet again to the next level in efficiency and performance.

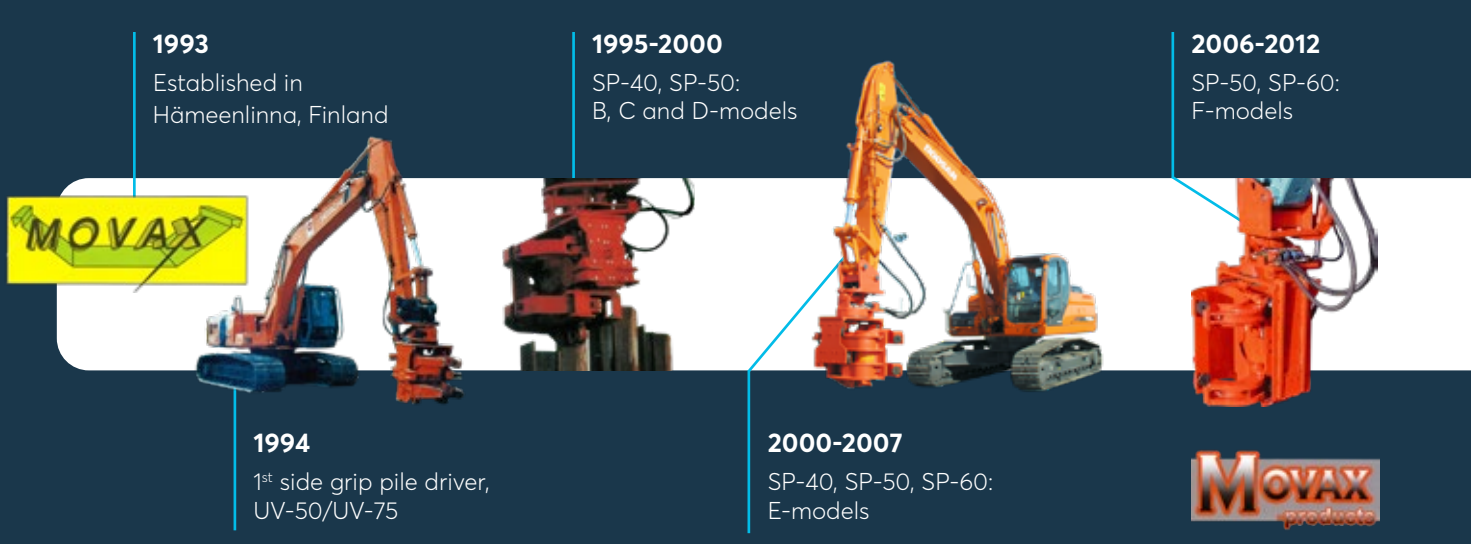
1993
Established in Hämeenlinna, Finland

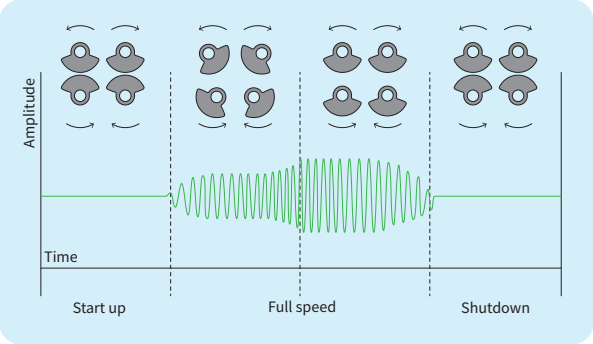
1994
1st side grip pile driver, UV-50/UV-75

1995-2000
SP-40, SP-50: B, C and D-models

2000-2007
SP-40, SP-50, SP-60: E-models

2006-2012
SP-50, SP-60: F-models





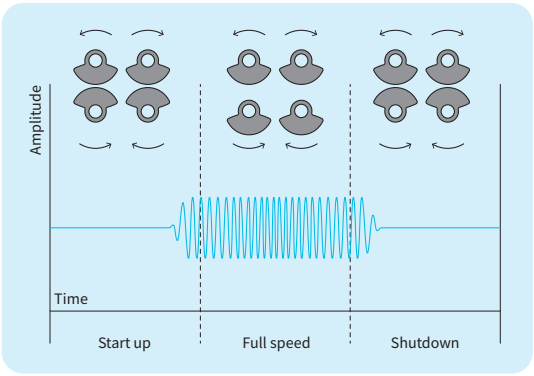
Variable active eccentric moment

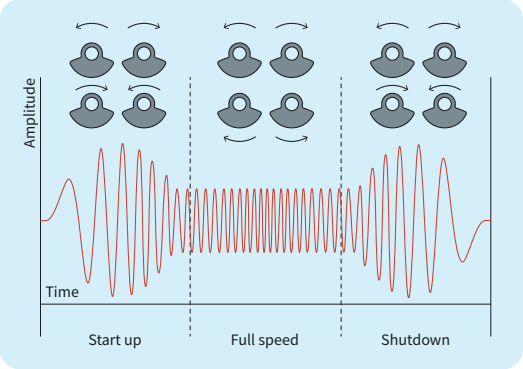
The variable active technology allow the adjustment of the eccentric moment - and thus the amplitude - during pile driving or extraction. The variable active moment optimizes the use of the excavators hydraulic power by maintaining the highest possible force in challenging soil conditions and preventing the formation of resonance frequencies throughout the piling process.

The start-up and shutdown of **variable active type** vibratory pile drivers are resonance free, thus minimizing any disturbances to the surrounding soil or structures.

Resonance-free

The resonance-free technology allows for starting up and shutting down the side grip pile driver without vibration. This is achieved for instance by shifting the upper row eccentrics in respect to the lower row eccentrics. The total eccentric moment of resonance free type vibratory pile drivers can be switched from 0% during start-up to 100% during operation and back to 0% during shut down thus minimizing any disturbances to the surrounding soil or structures.





Fixed eccentric moment

Fixed eccentric vibratory pile drivers are either high frequency (2300-3000 rpm/38- 50 Hz) or low frequency (24 Hz/1700 rpm) vibratory pile drivers. The fixed eccentric moment pile drivers are suitable for a wide range of piling works in different site and soil conditions when there is no need to minimize disturbances to the surroundings.

2011-2013
new Generation modular side grip (SG) pile driver

2012-2015
Resonance-free modular (SG-V) side grip pile driver

2016-2017
SG face-lift

2018-2020
SG-LITE series

2023
next Generation Variable active (SG-VA) side grip pile driver: models SG-80VA

2024
Variable active side grip pile drivers SG-45VA, SG-50VA & SG-65VA

MOVAX
Total Piling Solutions


MOVAX

SIDE GRIP VIBRATORY PILE DRIVERS

FEATURES

EXCAVATOR-MOUNTED

- Suitable for 7-50 ton excavators.
- Utilizing the hydraulic power and lifting capacity of the excavator or rail roader (carrier).
- Designed to work on any and all wheeled and crawler-type excavators and rail roaders by utilising and commanding the standard auxiliary hydraulics and/or by connecting to the electronic control of the excavator.

COMPREHENSIVE MODEL & SIZE RANGE

- Available in different models, sizes and configurations for different piling requirements and different type of piles ranging sheet piles, trench sheets and, H-beams to tubular steel piles and timber piles
- Available for excavators ranging from 7 to 50 ton – thus always ensuring the optimum size and correct combination of vibratory pile driver and excavator.

HIGH FREQUENCY

- High frequency HF (2300-3000 rpm / 38-50 Hz) vibratory pile driver
- Specifically designed to be used with an excavator or rail roader as carrier.

STATE-OF-THE ART VIBRATION TECHNOLOGY

- Variable eccentric moment (VA-models) for optimum performance under all site and soil conditions. VA -models are also resonance-free under all operating conditions.
- Available also with fixed eccentric moment (STD/LITE).

MOVAX MODULAR SYSTEM

- Versatility based on the MOVAX Modular System™ which enables the use of the same unit for a wide range of different piling requirements, piling work and type of piles.
- Optional handling clamps available for U- & Z-piles.

MOVAX CONTROL SYSTEM

- MOVAX Control System, mControl+
  - mControl+ LITE
  - mControl+ PRO with automatic tip-control for maximised productivity and quality.
- Advanced, real-time monitoring of
  - Clamping pressure *(electronically monitored, actual pressure of all individual cylinders)*
  - Gear oil pressure
  - Gear oil temperature

MOVAX INFORMATION MANAGEMENT SYSTEM

- mFleetManagement for monitoring MOVAX piling equipment operation, performance and condition.
- mLogbook for monitoring and reporting the piling works.

HANDLING, PITCHING, DRIVING AND EXTRACTING PILES

SIDE GRIP VIBRATORY PILE DRIVERS

SELECTION

The optimal MOVAX side grip pile driver for a specific piling & foundation application is selected based on the following:

- technology (variable active, resonance-free, fixed eccentric)
- excavator brand and model
- soil & site conditions
- pile dimensions (weight & length/diameter)

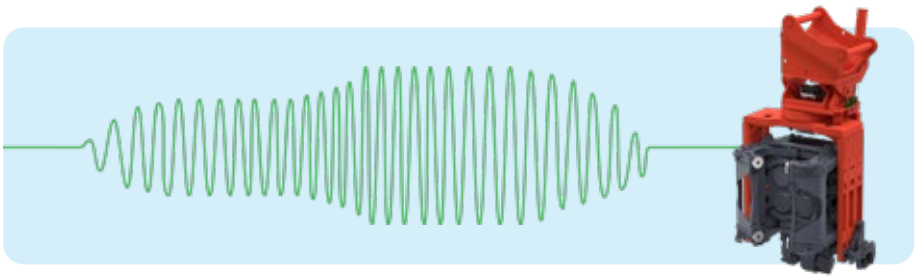
The configuration ie. the arms, clamps and/or pads of the MOVAX side grip pile driver are then selected based on the type of piles to be driven.

Variable active (VA) | Resonance-free (V) | Standard (STD) | Lite (N)

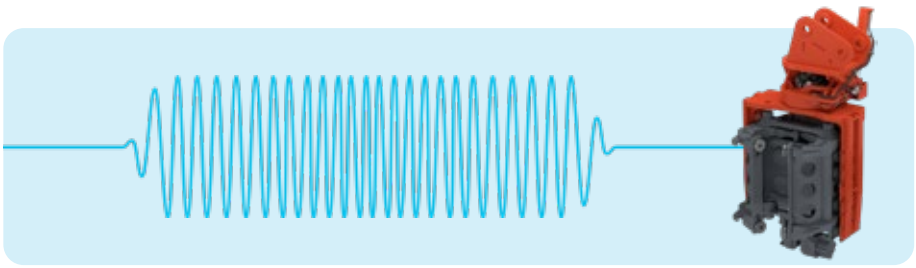
Model (technology)

MOVAX side grip vibratory pile driver-models are available based on three different (vibro)technologies: variable eccentric moment (VA), resonance-free (V) and with fixed eccentric moment (STD/LITE). MOVAX side grip vibratory pile drivers are available with variable active moment, resonance-free start/stop (V) and with fixed eccentric moment.

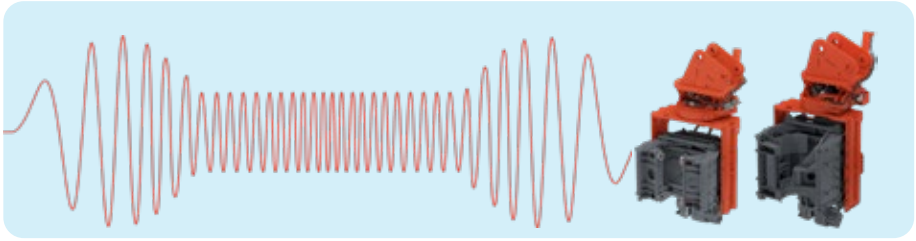
Variable Active (VA) models are selected for the most demanding applications and for sensitive areas where disturbances to the surroundings are to be minimized.



Resonance-free (V) models are selected for sensitive areas where disturbances to the surroundings are to be minimized.



Fixed eccentric (LITE & STD) models are selected for a wide range of piling jobs.



PRODUCT RANGE

SIDE GRIP PILE DRIVERS

Excavator (brand & model)

The excavator must be suitable – and match – the specific vibratory pile driver in question in regards to hydraulic power (oil flow @ pressure). Thus the excavator brand & model is needed for the correct selection of model.

Type & dimension of piles

In order to select the correct MOVAX model, the type of piles (sheet pile, H-beam, tubular steel pile and/or timber pile) and their dimensions (length, width/depth, OD) are needed.

The arms, clamps and pads are selected based on the piles to be driven. Due to the modular design *(MOVAX Modular System)* the same MOVAX side grip pile driver can be used to drive different type of piles.

Soil conditions

Vibratory pile drivers are suitable for a wide range of soil conditions & N-values (SPT). In order to make a detailed analysis of the suitability of a MOVAX model for a specific project a soil report is needed.

Site conditions

MOVAX side grip pile drivers are the optimum solution for sites with limited access, space or headroom. Standard (STD) and Lite models are selected for a wide range of piling jobs. Variable active (VA) and Resonance-free (V) models are selected for sensitive areas where disturbances to the surroundings are to be minimized.

SELECTION CHART

EXCAVATOR CLASS/ PILE SIZE (length/weight)	**33-50 t**	**28-32 t**	**23-28 t**	**20-24 t**	**17-21 t**	**13-16 t**	**7-11 t**
6 m x 2800 kg 12 m x 1900 kg 16 m x 1300 kg	**SG-80VA SG-75V SG-75**						
8 m x 2300 kg 12 m x 1800 kg 16 m x 1200 kg		**SG-65VA SG-60V SG-60**	**SG-50VA SG-50V SG-50**	**SG-45VA SG-45V SG-45**			
6 m x 1200 kg 12 m x 1000 kg 16 m x 900 kg					**SG-40N SGL-15**	**SG-30N SGL-15**	
4 m x 400 kg 6 m x 200 kg							**SG-15N SGL-15**
SUITABLE PILES							
Sheet piles / trench sheets	width 400-1200 mm				width 400-1200 mm		width 400-600 mm
H-beams	H100-H500				H100-H400		H100-H140
Timber piles	Ø160–600 mm				Ø120–325 mm		Ø100–200 mm
Tube piles	Ø88.9–1220 mm				Ø88.9–508 mm		Ø88.9–323.9 mm

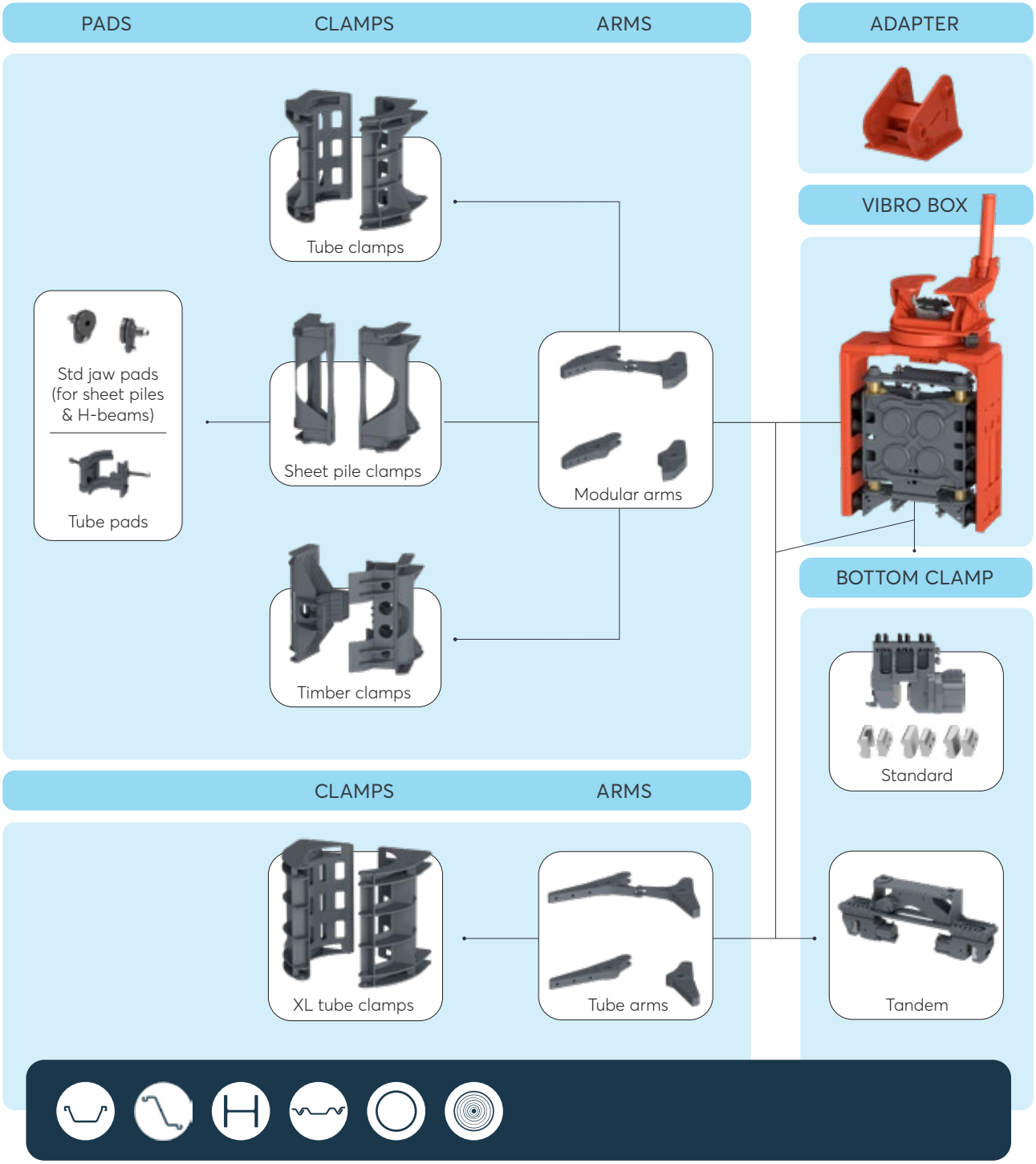
The Selection Chart provides the preliminary selection; When making the final selection the excavator engine size and hydraulic system design (oil pump arrangement, oil flow rate/pressure etc.), excavator lifting capacity and stability and soil and site conditions shall be taken into account.

SIDE GRIP VIBRATORY PILE DRIVERS

MOVAX MODULAR SYSTEM

Variable Active

The MOVAX Modular System (MMS™) enables the use of the same MOVAX side grip pile driver for a wide range of different type of piles ranging from sheet piles, H-beams and tubular steel piles to timber piles. The MOVAX Modular System includes interchangeable arms, clamps and pads that can easily and efficiently be changed for the different pile types in question.



SIDE GRIP VIBRATORY PILE DRIVERS

MOVAX MODULAR SYSTEM

Variable Active

MODULAR ARMS

SHEET PILE CLAMPS

TUBE PADS

STD
JAW PADS

TUBE CLAMPS

TIMBER CLAMPS

TUBE ARMS

XL TUBE CLAMPS

XL TUBE
ARMS

TANDEM
BOTTOM
CLAMP

SIDE GRIP VIBRATORY PILE DRIVERS

MODULAR ARMS

Variable Active

Modular arms are suitable for driving sheet piles, H-beams, tubular steel piles and timber piles.

Sheet pile clamps are utilised to drive sheet piles and H-beams. The sheet pile clamps can be equipped with tube pads for tubular steel piles up to OD 273 mm. Each tube size requires its own tube pads in order to ensure proper operation.

Tube clamps are utilised for tubular steel piles up to OD 762 mm. Each tube size requires its own tube clamps of matching size.

Timber clamps are utilised to drive timber or wooden piles. A range of round timber piles can be driven with the same timber clamps whereas square timber piles requires clamps of the same size.

TUBE CLAMPS

for tubular steel piles from
OD 88.9 mm up to OD 762 mm:

Standard sizes

Ø 88.9	Ø 168.3	Ø 457
Ø 101.6	Ø 219.1	Ø 508
Ø 114.3	Ø 273	Ø 610
Ø 127	Ø 323.9	Ø 711
Ø 139.7	Ø 406.4	Ø 762

SHEET PILE CLAMPS

Sheet pile/H-beam
w 400–1200 mm/H180-H500

Tube piles up to OD 273

Standard sizes

Ø 88.9	Ø 114.3	Ø 139.7	Ø 219.1
Ø 101.6	Ø 127	Ø 168.3	Ø 273

TIMBER CLAMPS

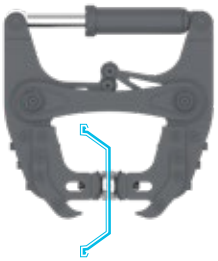
for timber piles from
OD 160 mm up to 600 mm

A range of timber pile sizes can be driven with the same timber clamps.

Standard sizes

M Ø 160-420 mm
L Ø 430-600 mm

Customised sizes and special types, for instance for rail tracks, are available by request.



SIDE GRIP VIBRATORY PILE DRIVERS

TUBE ARMS

Variable Active

Special modular tube arms are utilised to handle and drive large diameter tubes from 508 mm up to OD 1220 mm. Each tube size requires its own tube clamp of the same size as the tube in order to ensure proper operation.

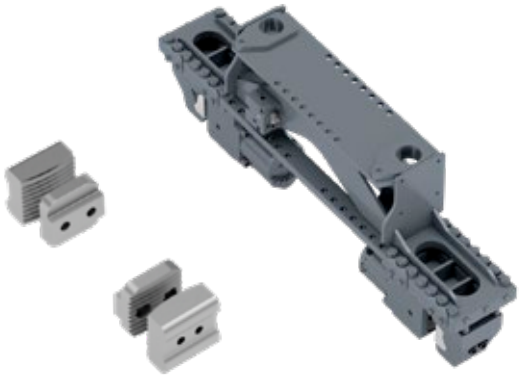
A tandem bottom clamp is available for the same tube sizes as the tube arms for optimised pile driving of large tubes. The same tandem bottom clamp can be used for the range of the different size tubular steel piles.

XL TUBE CLAMPS

from OD 508 to 1220mm

Standard sizes

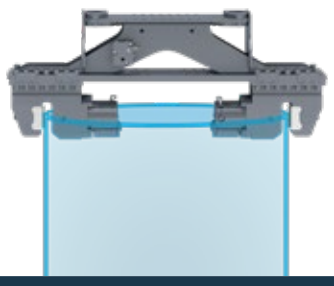
Ø 508	Ø 711	Ø 813	Ø 1016
Ø 610	Ø 762	Ø 914	Ø 1220



TANDEM BOTTOM CLAMP

Tube pads for tandem bottom clamp
from OD 508 mm up to OD 1220 mm.

TUBE ARMS are designed for the optimum handling, pitching and driving/ extraction of large OD tubes.



BOTTOM CLAMP incl. options

Variable Active

The (standard) bottom clamp is utilised for the completion of the pile driving and is suitable for all kinds of piles including sheet piles, H-beams and tubular steel piles.

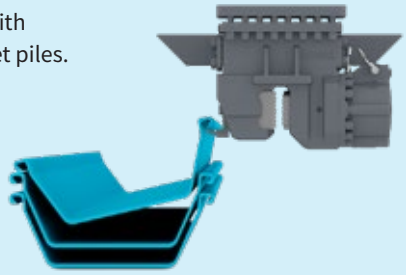
The bottom clamp is equipped with pads for the specific pile type in question, Sheet pile pads are utilised for sheet piles and H-beams, Double (sheet) pile pads are recommended when driving double sheet piles (both U and Z). Tube pads are available in two sizes, from OD 323,9 mm to 508 mm and OD 508 mm to OD 762 mm; both covering the entire range as specified.

Smaller OD tube piles (from 88,9 mm to 323,9 mm and timber piles require a top hitter. The same top hitter is suitable for the entire range.

An optional handling jaws can be provided for added pile handling capabilities.

Lifting lever

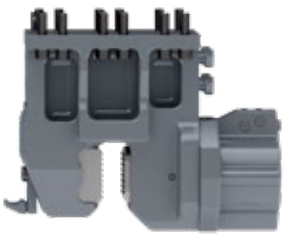
The bottom clamp is equipped with a lifting lever for handling of sheet piles.



Top hitter (optional)

Smaller OD tube piles and timber piles require a top hitter. The same top hitter is suitable for the entire range.

Top hitters for larger OD piles and f. ex. square timber piles are available by request.



Sheet pile pads

Tube pads

OD 323,9...508 mm
OD 508...762 mm

Double (sheet) pile pads

Available for double-Z type sheet piles

Handling jaws (optional)

Handling jaws are available with different type of inserts for optimised gripping of different type of pile profiles (both sheet piles and smaller OD tube pile piles).

SIDE GRIP VIBRATORY PILE DRIVERS

TECHNICAL DATA

Variable Active

Model		SG-80VA	SG-65VA	SG-50VA	SG-45VA
Weight (with sheet pile clamps, excl. adapter)	kg	3210	2810	2500	2490
Height	mm	2860	2840	2840	2840
Depth	mm	1295	1295	1295	1295
Width	mm	1230	1170	1170	1170
Frequency		38-50 Hz (2300-3000 RPM)			
Eccentric moment (max)	kgm	8,1	6,6	5,1	4,6
Centrifugal force (max)	kN	800	650	500	450
Ground vibration		Minimal			
Resonance free start/stop		Yes			
Active variable eccentric moment		Yes			
Swing/tilt angle	°	360/±45			
Pile length/weight		6 m / 2800 kg 12 m / 1900 kg 16 m / 1300 kg	8 m / 2300 kg 12 m / 1800 kg 16 m / 1200 kg	8 m / 2300 kg 12 m / 1600 kg 16 m / 1200 kg	
Return Pressure	bar	5			
Pressure setting	bar	350			
Excavator class	t	33-50	28-32	23-28	20-24
Engine power, min., TIER III	kW	180	135	125	100
Engine power, min., TIER IV	kW	200	160	135	120

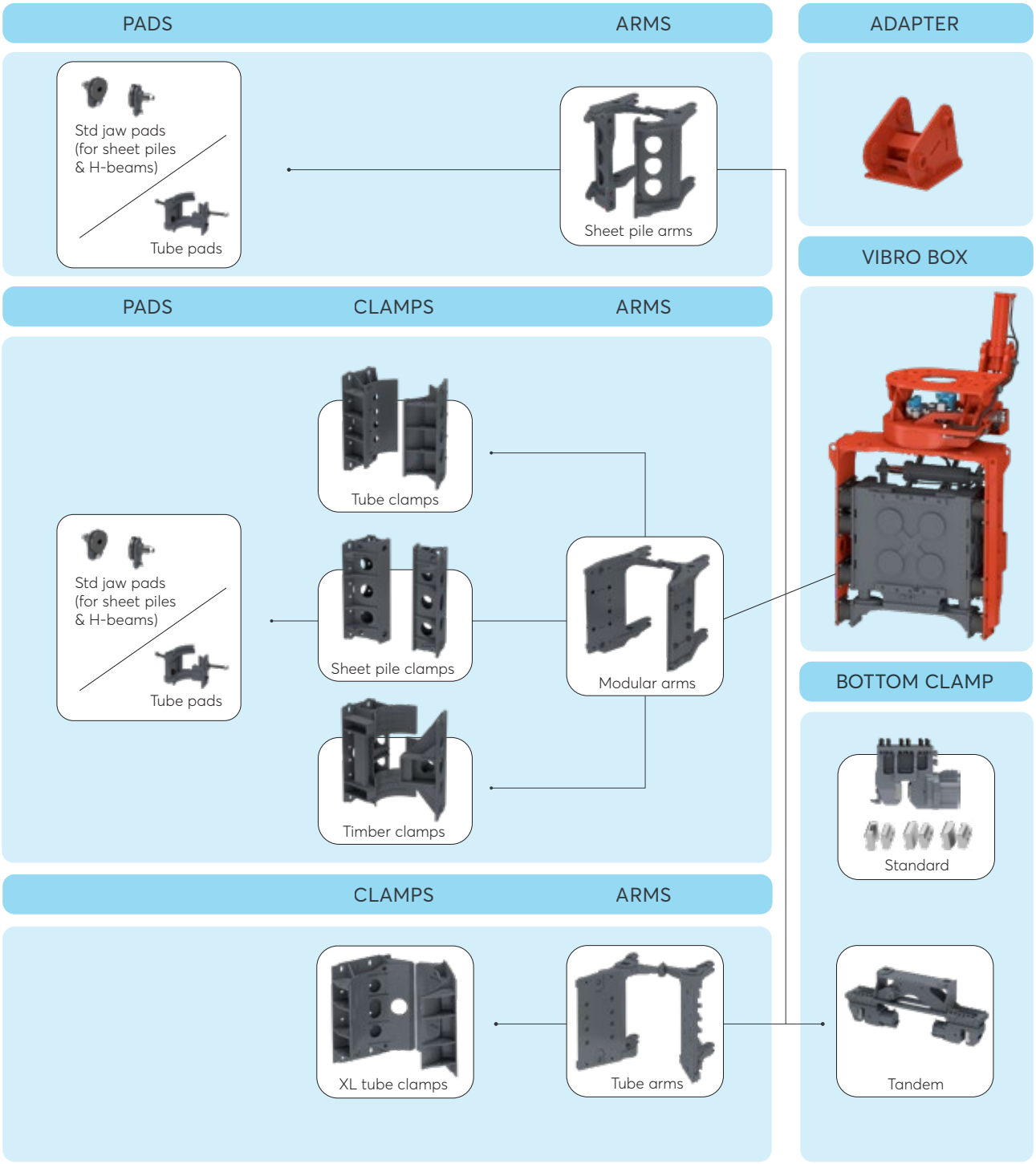

MOVAX

SIDE GRIP VIBRATORY PILE DRIVERS

MOVAX MODULAR SYSTEM

Fixed eccentric & Resonance-free

The MOVAX Modular System (MMS™) enables the use of the same MOVAX side grip pile driver for a wide range of different type of piles ranging from sheet piles, H-beams and tubular steel piles to timber piles. The MOVAX Modular System includes interchangeable arms, clamps and pads that can easily and efficiently be changed for the different pile types in question.



SIDE GRIP VIBRATORY PILE DRIVERS

MOVAX MODULAR SYSTEM

Fixed eccentric & Resonance-free

SHEET PILE ARMS

SHEET PILE CLAMPS

TUBE PADS

STD
JAW PADS

MODULAR ARMS

SHEET PILE CLAMPS

TUBE PADS

STD
JAW PADS

TUBE CLAMPS

TIMBER CLAMPS

TUBE ARMS

XL TUBE CLAMPS

SIDE GRIP VIBRATORY PILE DRIVERS

SHEET PILE ARMS

Fixed eccentric & Resonance-free

Special sheet pile arms are the optimum solution when handling, pitching, driving and extracting only – or mainly – sheet piles and/or H-beams.

The special sheet pile arms can also be utilised to drive smaller diameter tubular steel piles or micropiles up to OD 273 mm. Each tubular steel pile size requires its own, individual tube pads.

SHEET PILE PADS

for sheet piles and H-beams

Standard sizes
w 400–1200 mm
/ H180–H500

TUBE PADS

for tubular steel piles
from OD 88.9 mm to OD 273 mm

Standard sizes

Ø 88.9	Ø 127	Ø 219.1
Ø 101.6	Ø 139.7	Ø 273
Ø 114.3	Ø 168.3	

Customised sizes and special types, for instance for rail tracks, are available by request.

SHEET PILE ARMS are designed for the optimum handling, pitching and driving/extraction of sheet piles, H-beams and tube piles.

Clamp hooks

Clamping the web

Handling, pitching, driving & extracting H-beams

Handling, pitching, driving & extracting sheet piles

Handling, pitching, driving & extracting small OD tube piles

SIDE GRIP VIBRATORY PILE DRIVERS

TUBE ARMS

Fixed eccentric & Resonance-free

Special modular tube arms are utilised to handle and drive large diameter tubes from 508 mm up to OD 1220 mm. Each tube size requires its own tube clamp in order to ensure proper operation.

A tandem bottom clamp is available for the same tube sizes as the tube arms for optimised pile driving of large tubes.

TUBE CLAMPS

for tubular steel piles from OD 508 mm to OD 1220 mm

Standard sizes

Ø 508	Ø 762	Ø 1016
Ø 610	Ø 813	Ø 1220
Ø 711	Ø 914	

Customised sizes are available by request.

TANDEM BOTTOM CLAMP

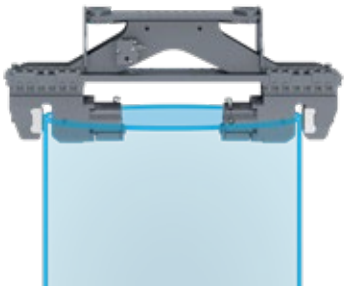
TUBE PADS

Standard sizes

Tube pads for tandem bottom clamp from OD 508 mm up to OD 1220 mm

TUBE ARMS are designed for the optimum handling, pitching and driving/extraction of large OD tubes.

Handling, pitching, driving & extracting large OD tube piles



Tandem bottom clamp driving/extracting large OD tube piles

SIDE GRIP VIBRATORY PILE DRIVERS

MODULAR ARMS

Fixed eccentric & Resonance-free

Modular arms are suitable for driving sheet piles, H-beams, tubular steel piles and timber piles.

Sheet pile clamps are utilised to drive sheet piles and H-beams. The sheet pile clamps can be equipped with tube pads for tubular steel piles up to OD 273 mm. Each tube size requires its own tube pads in order to ensure proper operation.

Tube clamps are utilised for tubular steel piles up to OD 762 mm. Each tube size requires also its own tube clamps.

Timber clamps are utilised to drive timber or wooden piles. A range of round timber piles can be driven with the same timber clamps whereas square timber piles requires clamps of the same size.

TUBE CLAMPS

for tubular steel piles from
OD 88.9 mm up to OD 762 mm:

Standard sizes

Ø 88.9	Ø 168.3	Ø 457
Ø 101.6	Ø 219.1	Ø 508
Ø 114.3	Ø 273	Ø 610
Ø 127	Ø 323.9	Ø 711
Ø 139.7	Ø 406.4	Ø 762

SHEET PILE CLAMPS

for sheet piles and H-beams/
tubular steel piles from OD 88.9 mm
to OD 273 mm:

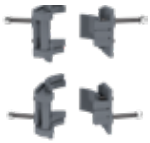
SHEET PILE PADS

w 400–1200 mm/H180-H500

TUBE PADS

Standard sizes

Ø 88.9	Ø 139.7
Ø 101.6	Ø 168.3
Ø 114.3	Ø 219.1
Ø 127	Ø 273



TIMBER CLAMPS

for timber piles from
OD 160 mm up to 600 mm:

A range of round timber pile sizes can be driven with the same timber clamps.

Standard sizes

M Ø 160-420 mm
L Ø 430-600 mm

In addition clamps for square timber piles are also available. Each square timber pile size requires clamps of matching size.

Customised sizes are available by request. (e.g. clamps for square timber piles or other special profiles).

MODULAR ARMS are designed for versatility and to handle, pitch, drive and extract sheet piles, tube piles or timber piles.

Handling, pitching, driving & extracting tube piles

Handling, pitching, driving & extracting sheet piles

Handling, pitching, driving & extracting small OD tube piles

Handling, pitching, driving & extracting timber piles

SIDE GRIP VIBRATORY PILE DRIVERS

BOTTOM CLAMP incl. options

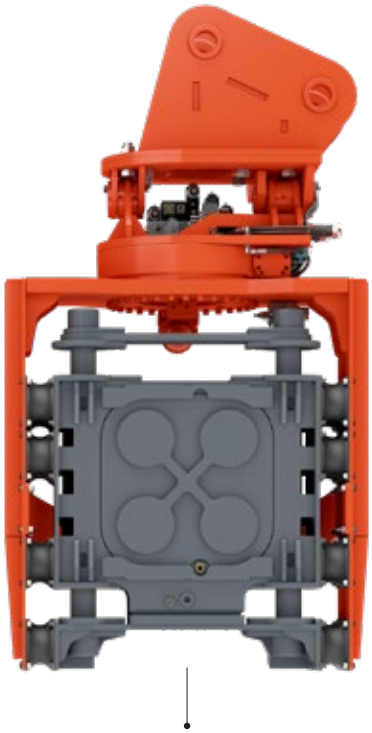
Fixed eccentric & Resonance-free

The (standard) bottom clamp is utilised for the completion of the pile driving and is suitable for all kinds of piles including sheet piles, H-beams and tubular steel piles.

The bottom clamp is equipped with pads for the specific pile type in question, Sheet pile pads are utilised for sheet piles and H-beams, Double (sheet) pile pads are recommended when driving double sheet piles (both U and Z). Tube pads are available in two sizes, from OD 323,9 mm to 508 mm and OD 508 mm to OD 762 mm; both covering the entire range as specified.

Smaller OD tube piles (from 88,9 mm to 323,9 mm and timber piles require a top hitter. The same top hitter is suitable for the entire range.

An optional 4th jaw can be provided for added pile handling capabilities.



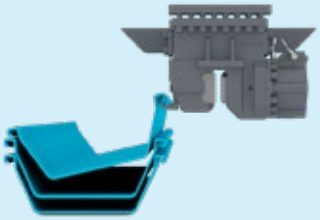
Top hitter (optional)

Smaller OD tube piles (from 88,9 mm to 323,9 mm and timber piles require a top hitter. The same top hitter is suitable for the entire range.

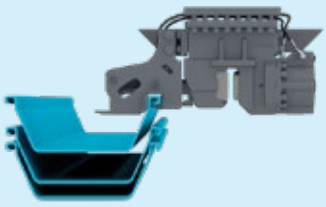
Top hitters for larger OD piles and f. ex. square timber piles are available by request.

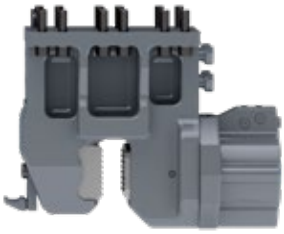
Lifting lever

The bottom clamp is equipped with a lifting lever for handling of sheet piles.



4th jaw (optional)





Sheet pile pads

Tube pads
OD 323,9...508 mm
OD 508...762 mm

Double (sheet) pile pads
Available for double-Z type sheet piles


MOVAX

SIDE GRIP VIBRATORY PILE DRIVERS

TECHNICAL DATA

Fixed eccentric

Model		SG-75	SG-60	SG-50	SG-45
Weight	kg	3330-3620	2550-2850	2400-2700	2390-2690
Height	mm	2615	2550	2530	2530
Depth	mm	1250-1600	1180-1435	1180-1435	1180-1435
Width	mm	1270	1193	1193	1193
Frequency	1/min	2300-3000	2300-3000	2300-3000	2300-3000
Eccentric moment	kgm	7,6	6,1	5,1	4,6
Centrifugal force, max	kN	750	600	500	450
Ground vibration		normal			
Resonance-free start/stop		no			
Driving method		vibration			
Swing/tilt angle	°	360/30	360/30	360/30	360/30
Return pressure, max	bar	5	5	5	5
Pressure setting	bar	350	350	350	350
Excavator class	t	33 - 40	28 - 32	23-28	20-24
Engine power, min. TIER III	kW	180	135	117	100
Engine power, min. TIER IV	kW	200	160	135	120

Suitable piles					
Length & weight	m/kg	8 x 2800 12 x 1900 16 x 1300	8 x 2300 12 x 1800 16 x 1200	8 x 2300 12 x 1800 16 x 1200	8 x 2300 12 x 1800 16 x 1200
Sheet piles, width	mm	400-1200			
Sheet piles, max. depth	mm	265			
H-beams	size	H100-H500			
Timber piles	mm	Ø160-420			
Tubular steel piles, tubes	mm	Ø430-600			

SIDE GRIP VIBRATORY PILE DRIVERS

TECHNICAL DATA

Resonance-free

Model		SG-75V	SG-60V	SG-50V	SG-45V
Weight	kg	3500-3750	2650-2950	2500-2800	2490-2790
Height	mm	2615	2550	2530	2530
Depth	mm	1250-1600	1180-1435	1180-1435	1180-1435
Width	mm	1270	1193	1193	1193
Frequency	1/min	2300-3000	2300-3000	2300-3000	2300-3000
Eccentric moment	kgm	7,6	6,1	5,1	4,6
Centrifugal force, max	kN	750	600	500	450
Ground vibration		low			
Resonance-free start/stop		yes			
Driving method		vibration			
Swing/tilt angle	°	360/30	360/30	360/30	360/30
Return pressure, max	bar	5	5	5	5
Pressure setting	bar	350	350	350	350
Excavator class	t	33-50	28-32	23-28	20-24
Engine power, min. TIER III	kW	180	135	117	100
Engine power, min. TIER IV	kW	200	160	135	120

Suitable piles					
Length & weight	m/kg	6 x 2800 12 x 1900 16 x 1300	8 x 2300 12 x 1800 16 x 1200	8 x 2300 12 x 1800 16 x 1200	8 x 2300 12 x 1800 16 x 1200
Sheet piles, width	mm	400-1200			
Sheet piles, max. depth	mm	265			
H-beams	size	H100-H500			
Timber piles	mm	Ø160-420			
Tubular steel piles, tubes	mm	Ø430-600			

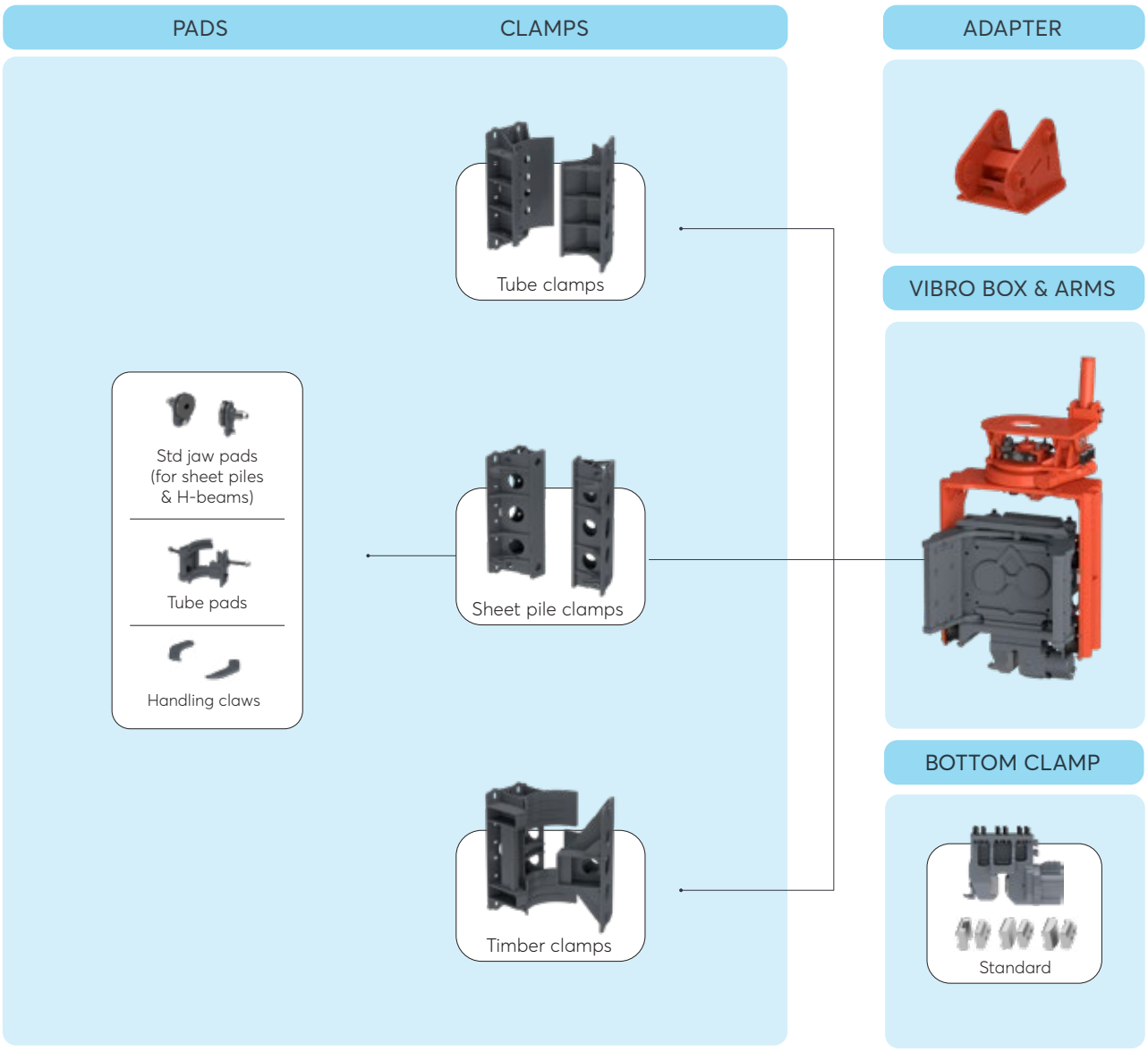
SIDE GRIP VIBRATORY PILE DRIVERS

MOVAX MODULAR SYSTEM

Fixed eccentric (LITE)

The MOVAX Modular System (MMS™) enables the use of the same MOVAX side grip pile driver for a wide range of different type of piles ranging from sheet piles, H-beams and tubular steel piles to timber piles.

The MOVAX Modular System includes interchangeable clamps and pads that can easily and efficiently be changed for the different pile types in question.



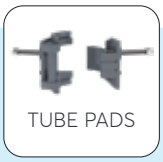
SIDE GRIP VIBRATORY PILE DRIVERS

MOVAX MODULAR SYSTEM

Fixed eccentric (LITE)

MODULAR ARMS

SHEET PILE CLAMPS



TUBE PADS

STD
JAW PADS

TUBE CLAMPS

TIMBER CLAMPS

SIDE GRIP VIBRATORY PILE DRIVERS

MODULAR ARMS

Fixed eccentric (LITE)

Modular arms are suitable for driving sheet piles, H-beams, tubular steel piles and timber piles.

Sheet pile clamps are utilised to drive sheet piles and H-beams. The sheet pile clamps can be equipped with tube pads for tubular steel piles up to OD 273 mm. Each tube size requires its own tube pads of matching size in order to ensure proper operation.

Tube clamps are utilised for larger tubular steel piles. Each tube size requires also its own tube clamps.

Timber clamps are utilised to drive timber or wooden piles. A range of round timber piles can be driven with the same timber clamps whereas square timber piles requires clamps of the same size.

SIDE GRIP VIBRATORY PILE DRIVERS

MODULAR ARMS

Fixed eccentric (LITE)

TUBE CLAMPS

for tubular steel piles from OD 88.9 mm up to OD 323.9/508 mm:

SG-30N...SG-40N
Ø 88.9–508 mm
SG-15N
Ø 88.9–323.9 mm

Standard sizes

Ø 88.9	Ø 168.3
Ø 101.6	Ø 219.1
Ø 114.3	Ø 273
Ø 127	Ø 323.9
Ø 139.7	Ø 406.4
Ø 457	Ø 508

SHEET PILE CLAMPS

for sheet piles and H-beams and tubular steel piles from OD 88.9 mm to OD 273 mm:

SHEET PILE PADS

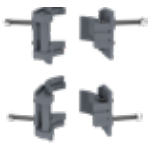
SG-30N...SG-40N
w 400–1200 mm/H120-H400

SG-15N
w 400–600 mm/H120-H140

TUBE PADS

Standard sizes

Ø 88.9	Ø 139.7
Ø 101.6	Ø 168.3
Ø 114.3	Ø 219.1
Ø 127	Ø 273



HANDLING CLAWS*

Available for SG-30N & SG-40N.

TIMBER CLAMPS

for timber piles from OD 100/120 mm up to OD 300/325 mm:

A range of round timber pile sizes can be driven with the same timber clamps.

Standard sizes

SG-30N & SG-40N

S Ø 120-250 mm
M Ø 220-325 mm

SG-15N

S Ø 100-200 mm
M Ø 200-300 mm

In addition clamps for square timber piles are also available. Each square timber pile size requires clamps of matching size.

Customised sizes are available by request. (e.g. clamps for square timber piles or other special profiles).

MODULAR ARMS are designed for versatility and to handle, pitch, drive and extract sheet piles, tube piles or timber piles.

Handling, pitching, driving & extracting tube piles

Handling, pitching, driving & extracting sheet piles

Handling, pitching, driving & extracting small OD tube piles

Handling, pitching, driving & extracting timber piles

*Handling claws for the SG-15N are available as optional add-on (not included with the base unit).

BOTTOM CLAMP incl. OPTIONS

Fixed eccentric (LITE)

The (standard) bottom clamp is utilised for the completion of the pile driving and is suitable for all kinds of piles including sheet piles, H-beams and tubular steel piles, as well as timber piles.

The bottom clamp is equipped with pads for the specific pile type in question, Sheet pile pads are utilised for sheet piles and H-beams, Double (sheet) pile pads are recommended when driving double sheet piles (both U and Z). Tube pads are available from OD 323,9 mm to 508 mm; covering the entire size range as specified.

Smaller OD tube piles and timber piles require a top hitter. The same top hitter is suitable for the entire range.

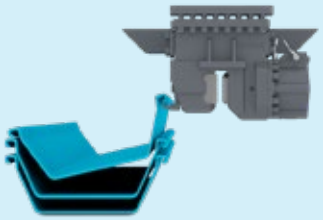
Top hitter (optional)

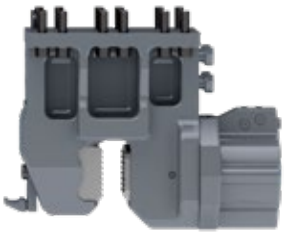
Smaller OD tube piles (from 88,9 mm to 323,9 mm and timber piles require a top hitter. The same top hitter is suitable for the entire range.

Top hitters for larger OD piles and f. ex. square timber piles are available by request.

Lifting lever (SG-30N, SG-40N only)

The bottom clamp is equipped with a lifting lever for handling of sheet piles.





Sheet pile pads

Tube pads*
OD 323,9...508 mm

Double (sheet) pile pads*
Available for double-Z type sheet piles

** Available for SG-30N & SG-40N.*


MOVAX

SIDE GRIP VIBRATORY PILE DRIVERS

TECHNICAL DATA

Fixed eccentric (LITE)

Model		SG-40N	SG-30N	SG-15N
Weight	kg	1505	1485	760
Height	mm	2042	2042	1500
Depth	mm	1138	1138	900
Width	mm	1030	1030	850
Frequency	1/min	2300-3000	2300-3000	2300-3000
Eccentric moment	kgm	4,1	3,1	1,6
Centrifugal force, max	kN	400	300	150
Ground vibration		normal		
Resonance-free start/stop		no		
Driving method		vibration		
Swing/tilt angle	o	360/30	360/30	360/30
Return pressure, max	bar	5	5	5
Pressure setting	bar	350	350	300
Excavator class	t	17-21	13-16	7-12
Engine power, min. TIER III	kW	85	65	38
Engine power, min. TIER IV	kW	90	70	38

Suitable piles			
Length & weight	m / kg	6 / 1200 8 / 1000 10 / 900	4 / 400 6 / 200
Sheet piles, width	mm	400-1200	400-600
Sheet piles, max. depth	mm	260	140
Trench sheets	mm	330-600	
H-beams	size	H100-H400	H100-H140
Timber piles	mm	Ø220-325	Ø200-300
Tubular steel piles, tubes	mm	Ø88,9-508	Ø88,9-323,9


HITACHI

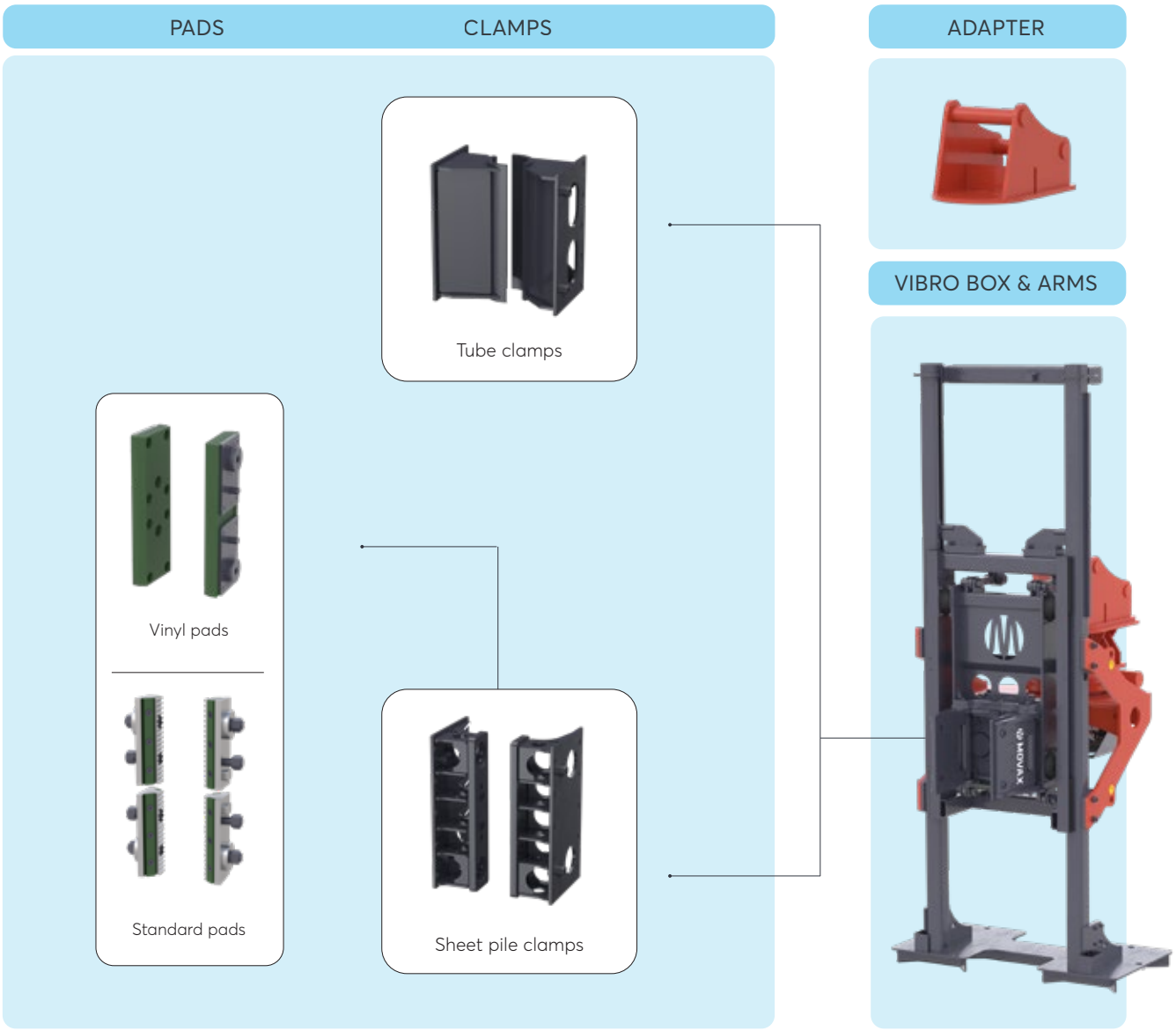
LEADER-GUIDED SIDE GRIP PILE DRIVER

MOVAX MODULAR SYSTEM

Model SGL

MOVAX SGL is an excavator mounted leader guided side grip vibratory pile driver designed to meet the high-quality requirements of the installation of the mounting systems for utility scale photovoltaic solar power plants.

The MOVAX Modular System (MMS™) enables easy and efficient changing of clamps and pads - and thus the use of the same MOVAX side grip pile driver for a wide range of different piles and profiles.



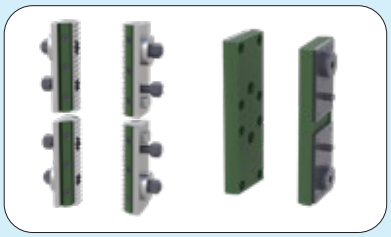
LEADER-GUIDED SIDE GRIP PILE DRIVER

MOVAX MODULAR SYSTEM

Model SGL

MOVAX SGL-models are always equipped with modular arms.

MODULAR ARMS



SHEET PILE CLAMPS

Sheet pile clamps with sheet pile pads are used for driving tubular steel piles (max 250 diameter), H-beams, sigma- and C- profiles.

TUBE CLAMPS

Tube clamps are utilised for driving tubular steel piles.

LEADER-GUIDED SIDE GRIP PILE DRIVER

TECHNICAL DATA

Model		SGL-15
Weight	kg	1050-1200
Height	mm	3505
Depth	mm	1480
Width	mm	1125
Vertical stroke	mm	1500
Frequency	1/min	2300 - 3000
Eccentric moment	kgm	1,6
Centrifugal force, max	kN	150
Ground vibration		normal
Resonance-free start/stop		no
Driving method		vibration
Swing/tilt angle	°	200/30
Return pressure, max	bar	5
Pressure setting	bar	300
Excavator class	t	8-21
Engine power, min., TIER III	kW	38
Engine power, min., TIER IV	kW	38

Suitable piles		
Length & weight	m x kg	9 / 400
C-, U- & Sigma profiles	width	100 - 300 mm
	depth	40 - 140 mm
H-beams	size	H100-H400
Timber piles	size	Ø100-200 mm Ø200-300 mm
Tubular steel piles, tubes	size	Ø88,9-323,9 mm


CASE


LIEBHERR
924

PILING HAMMER TECHNOLOGY

MOVAX Piling Hammers are hydraulic, double acting impact-type, piling hammers utilised for driving load-bearing piles or assisting in sheet pile driving in even the most difficult soil conditions.

MOVAX piling hammers can be utilised to complete a pile installation after reaching refusal with a side grip pile driver or when load testing is required. MOVAX piling hammers can further be utilised independently for driving a wide range of piles including sheet piles, H-beams, tubular steel piles, timber piles or pre-cast concrete piles.

MOVAX piling hammers are excavator mounted – either directly mounted onto the excavator, or in connection with an excavator mounted piling leader. As the MOVAX piling hammers utilize the hydraulic power of the excavator as its driving force no external sources of energy such as power packs are needed.

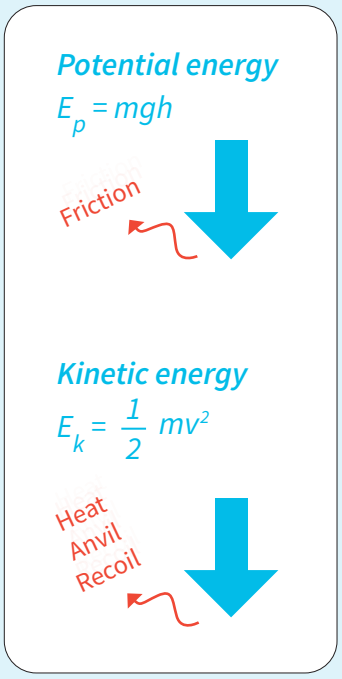
Hydraulic, double-acting piling hammer

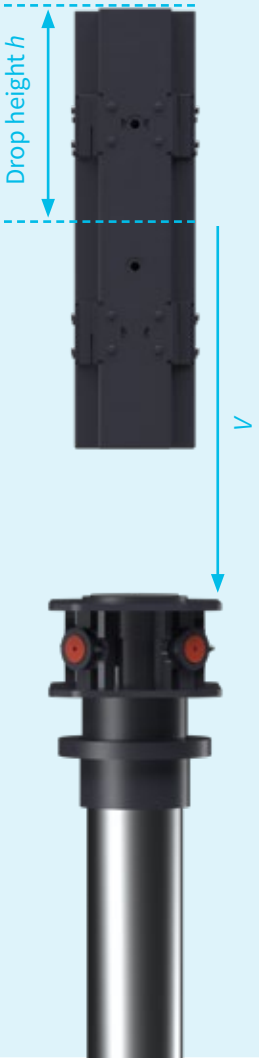
MOVAX hydraulic piling hammers uses the hydraulic energy produced by the excavator to lift the ram of the piling hammer to the desired elevation. When the piling hammer is released from its desired drop height the potential energy is then translated into the corresponding kinetic energy. This kinetic energy is utilized to drive the pile. External energy is added to the potential energy with the hydraulics of the excavator in order to overcome friction etc losses. Hence the definition 'double-acting'.

The working cycle is as follows: lift ram, release/ drop ram, re-lift ram, and so on. Both the drop height and the blow count can be flexibly adjusted based on the pile and piling requirements thus precisely controlling the energy utilized (as required) for the pile driving.

The ram velocity prior to impact is measured and the operator can monitor the impact energy with the MOVAX control system.

The efficiency of the MOVAX piling hammer is high, > 95%.






MARCEL
922

PILING HAMMERS

FEATURES

EXCAVATOR-MOUNTED

- Suitable for 20-50 ton excavators.
- Utilizing the hydraulic power and lifting capacity of the excavator or rail roader (carrier).
- Designed to work on any and all wheeled and crawler-type excavators and rail roaders by utilising and commanding the standard auxiliary hydraulics and/or by connecting to the electronic control of the excavator.

COMPREHENSIVE MODEL & SIZE RANGE

- Available in different models, sizes and configurations for different piling requirements and different type of piles ranging sheet piles and H-beams to tubular steel piles, precast concrete piles and timber piles.
- Available for excavators ranging from 20 to 50 ton – thus always ensuring the optimum size and correct combination of piling hammer and excavator.

DOUBLE ACTING, IMPACT TYPE TECHNOLOGY

- Drop height controlled between 0-1,2 m
- Blow count controlled between 1-100 blows per minute

VERSATILE OPTIONS

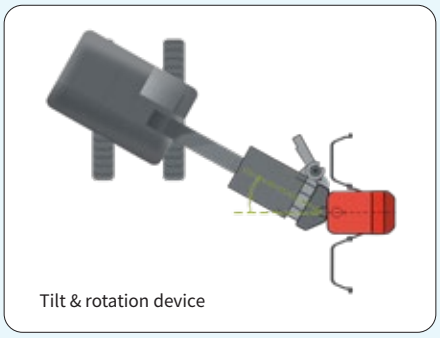
- Tilt device with +/- 15° tilt.
- Bolt-on plate mounted tilt (+/- 15°) & rotation device (+/- 60°) for optimum sheet pile driving *(note! models DH-15 and DH-25, only).*
- Available with 2,5 ton capacity pile handler for handling of different type of piles. Pile handler can be retrofitted on an existing MOVAX piling hammer.
- The same MOVAX piling hammer can be used on different carriers; mounting options include excavator-, MOVAX multi-tool piling leader-, (third party) piling rig- or crane.

MOVAX MODULAR SYSTEM

- Versatility based on the MOVAX Modular System™ which enables the use of the same unit for a wide range of different piling requirements and type of piles. The modular system includes a wide range of pile caps.

MOVAX CONTROL SYSTEM

- MOVAX Control System, mControl+
  - mControl+ LITE
  - mControl+ PRO with automatic tip-control for maximised productivity and quality.



Tilt & rotation device

MOVAX INFORMATION MANAGEMENT SYSTEM

- mFleetManagement for monitoring MOVAX piling equipment operation, performance and condition.
- Optional mLogbook for monitoring and reporting the piling works including pile set criterion.

DRIVING LOAD BEARING PILES & ASSISTING IN SHEET PILE DRIVING

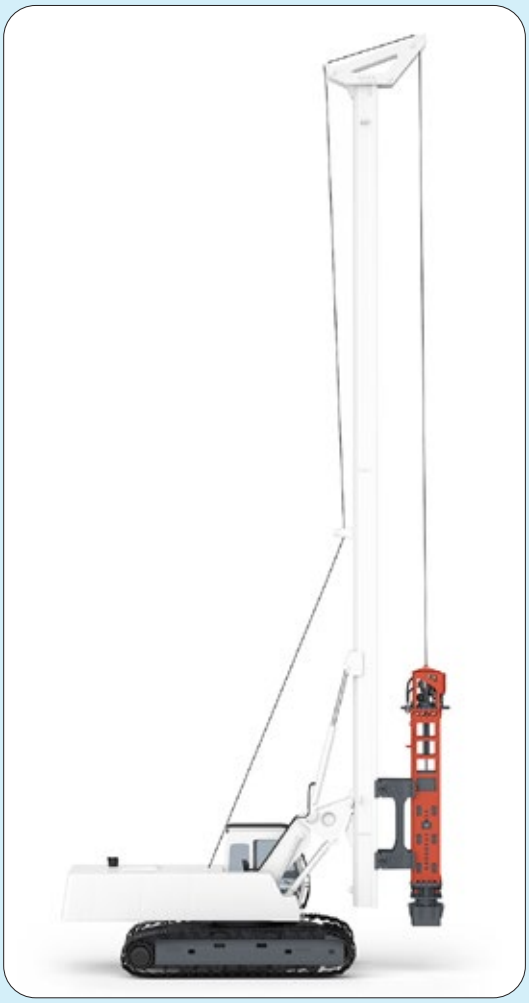
PILING HAMMERS

MOUNTING OPTIONS

The MOVAX piling hammers can be mounted directly onto the excavator (stick), onto MOVAX Multi-tool piling leader, or a third-party piling rig or crane.

Excavator-mounted

MOVAX multi-tool piling leader-mounted



Piling rig-mounted

Crane-mounted

Due to the modular design the same MOVAX piling hammer can be used on all the various carriers with minimum modifications. The mounting bracket, top cover and lower frame must be selected in accordance with the mounting option.

MOUNTING BRACKET

Each mounting option requires its own mounting bracket (except crane-mounting which do not require a mounting bracket).

Excavator-mounted

MPL-mounted

Piling rig-mounted

TOP COVER

The top cover is the same for the excavator- and multi-tool piling leader (MPL)- mounted DH piling hammer. When mounting the DH on a third party piling rig or on a crane a top cover with lifting lugs is required.

Excavator- & MPL-mounted

Piling rig-/crane -mounted

LOWER FRAME

The lower frame is the same for the excavator-, multi-tool piling leader (MPL)- and piling rig-mounted DH piling hammer. The crane-mounted piling hammer is equipped with a pile sleeve (“bell”) with pile guides available separately for tubular steel piles and sheet piles.

Excavator-, MPL- & piling rig-mounted

Crane mounted (with Bell)

PILING HAMMERS

PILE HANDLER

The MOVAX DH piling hammers can be equipped with a pile handler for added pile handling capabilities. The pile handler can also be added to existing MOVAX DH piling hammers by simply changing the top cover and adding the pile handler winch and guide.

TECHNICAL DATA

Technical data		
Lifting capacity	kg	2500
Wire rope length	m	36
Total weight	kg	160


MOVAX

PILING HAMMERS

SELECTION

The suitable MOVAX piling hammer-model is selected based on the soil & site conditions, the excavator and the main dimensions (weight & length) of the piles to be driven. The configuration is then defined by the type of piles.

Excavator (carrier)

The excavator must be suitable – and match – the specific piling hammer in question in regards to hydraulic power (oil flow @ pressure) and have the sufficient handling capacity for stable operation. Thus the excavator brand & model is needed for the correct selection of model.

Mounting options

The same MOVAX piling hammer can be used on different carriers; mounting options include excavator-, MOVAX multi-tool piling leader-, (third party) piling rig- or crane. For the suitability of mounting onto MOVAX multi-tool piling leaders refer to the Product Catalogue section in question. The suitability of a MOVAX piling hammer for third party piling rig or crane installation shall always be checked by MOVAX.

Site and soil conditions

Piling hammers are suitable for a wide range of sites and soil conditions (N-values/SPT). In order to make a detailed analysis of the suitability of a MOVAX model for a specific project a soil report is needed.

Type & dimension of piles

In order to select the correct MOVAX model, the type of piles (sheet pile, H-beam, tubular steel pile, precast concrete and/or timber pile) and their dimensions (length, width/depth, OD) are needed. Due to the modular design the same MOVAX piling hammer can used to drive different type of piles.

SELECTION CHART

EXCAVATOR CLASS **PILE SIZE** (length/weight)	**(38) 40-50 ton**	**(33) 35-50 ton**	**(28) 30-50 ton**	**(20) 23-50 ton**
Max. pile length and weight based on excavator reach and stability.	**DH-45**	**DH-35**	**DH-25**	**DH-15**
SUITABLE PILES				
Sheet piles	width 400-700 mm			
H-beams	H180-H700		H180-H500	
Precast concrete piles (max)	508 mm x 508 mm			
Timber piles	Ø 90-510 mm			
Tube piles	Ø 88.9-1200 mm		Ø 88.9-762 mm	

NOTE!

Preliminary. When making the final selection the excavator engine size and hydraulic system design (oil pump arrangement, oil flow rate/pressure etc), excavator lifting capacity and stability and soil and site conditions shall be taken into account.

PILE CAPS

MOVAX piling hammers can be equipped with the following standard type of pile caps (customized pile caps are available upon request):

SHEET PILES / H BEAMS

S for PU and GU sheet piles 600 mm / H-beam < 500 mm

M for AU sheet piles > 700 mm / H-beams < 700 mm

TUBULAR STEEL PILES, MICROPILES

DH-15 and DH-25

XS Ø 88,9–273 mm

DH-35 and DH-45

XS Ø 88,9–323,9 mm

TUBULAR STEEL PILES

Tubular steel pile caps are supplied with an external guide (as a standard, unless otherwise requested).

Flat type pile cap and pile cap with internal guide are available by request.

S Ø 273-508 mm
M Ø 406,4-762 mm
L Ø 762-1220 mm

External guide (Standard)

Available by request:

Flat

Internal guide

PRE-CAST CONCRETE PILES

XS 225 x 225 mm
S 250 x 250 mm
M 300 x 300 mm
L 350 x 350 mm
XL 450 x 450 mm

Customised, pile caps are available from 180 x 180 mm to 508 x 508 mm.

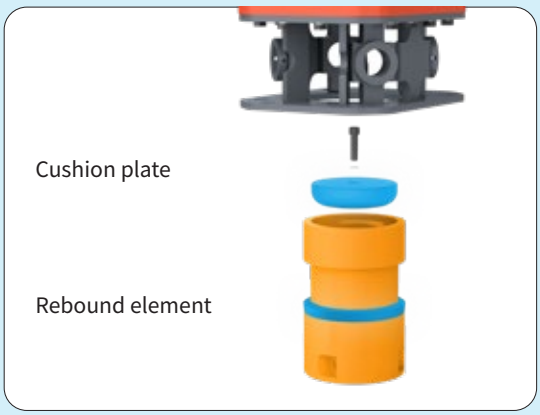
TIMBER PILES

DH-15, DH-25

Round	Square
XS Ø 90–220	XS 225 x 225 mm
S Ø 220–510	S 250 x 250 mm
	M 300 x 300 mm
	L 350 x 350 mm

DH-35, DH-45

Round	Square
XS Ø 90–325	XS 225 x 225 mm
S Ø 270–510	S 250 x 250 mm
	M 300 x 300 mm
	L 350 x 350 mm



NOTE! A single pile cap can handle the given range.

PILING HAMMERS

TECHNICAL DATA

Model		DH-45	DH-35	DH-25	DH-15
Total weight[1] - with extension	kg	6700 N/A	5750 N/A	4400[2]/4700[3] 5750[3]/6050[3]	3500[2]/3800[3] N/A
Ram weight	kg	4000	3100	2060	1360
Blows per minute	1/min	0–100	0–100	0-100	0–100
Impact energy	kNm	0–45	0–35	25-35	0–15
Drop height	m	0–1,2	0–1,2	0-1,2	0–1,2
Pressure relief set, max.	bar	350	350	350	350
Operating pressure	bar	280	250	200-250	150
Oil flow rate	l/min	80–120	80–120	80-120	80–120
Tilt angle	°	+/-15	+/-15	+/- 15	+/-15
Rotation angle	°	N/A	N/A	+/-60	+/-60
Leader	m	1,3	1,3	1,3	0,7
Leader, type		floating	floating	floating	floating
Total height	mm	4930	4460	4460 5310 w/extension	3850
Frame width	mm	650	650	500	500
Transport width	mm	1200	1200	1200	1200
Transport depth	mm	1870	1870	1870	1870
Excavator class	t	(38)–50	(33)–50	(28-33)-50	(20)–50

[1] *excluding adapter*
[2] *with tilt*
[3] *with tilt+rotate*

The MOVAX DH-25 is designed so that a modular ram/ frame extension assembly can be added enabling the use of the same DH-25 piling hammer with a ram weight of 3 tons.

INTRODUCTION

PILING DRILL TECHNOLOGY

MOVAX Piling drills are excavator-mounted, telescopic/kelly bar-type auger drive attachments for cast in-situ (concrete) piling and other soil removal tasks.

MOVAX Piling drills are explicitly designed for soil removal tasks. MOVAX piling drills are especially suitable for work in confined spaces while still being good at reaching over obstacles. The telescopic/kelly bar design keeps the drill height low and allows working on sites with limited headroom without compromising on drilling depth.

MOVAX piling drills are operated by transferring the torque and crowd force from a rotary drive tool to the drilling tool. MOVAX utilises two different designs: a telescopic design (TAD-models) and a kelly bar design (KB-models).

Kelly bar piling drill technology

MOVAX kelly bar-design piling drills utilize interlocking-type kelly bars which have drive ribs welded with lock devices utilized to transfer the maximum amount of torque to each section. The standard kelly bars are manufactured as a fully lockable system with a mechanical locking mechanism between each element, the outer bar and the rotary drive.

The kelly-bar design piling drill can also be used for cased drilling

Telescopic piling drill technology

MOVAX telescopic-design piling drills are cylinder/chain driven.
The piling drills consists of one or two moving sections.


VAN ELLE
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MOVAX

PILING DRILLS

FEATURES

EXCAVATOR-MOUNTED

- Suitable for 20-50 ton excavators.
- Utilizing the hydraulic power and lifting capacity of the excavator or rail roader
- Designed to work on any and all wheeled and crawler-type excavators and rail roaders by utilising and commanding the standard auxiliary hydraulics and/or by connecting to the electronic control of the excavator.

TELESCOPIC

- Light weight, telescopic type piling drills with a maximum drilling depth of 9 meters intended primarily for basic rail roaders and smaller excavators.

KELLY BAR

- Heavy duty, kelly bar type piling drills with a maximum drilling depth of 20 meters intended primarily for heavy duty rail roaders and large excavators.

MOVAX MODULAR SYSTEM

- Versatility based on the MOVAX Modular System™ which enables the use of the same unit for a wide range of different piling requirements.
- The modular system includes a wide range of lead augers in different sizes and for different soil conditions.
- Service winch (optional, KB-models only)
- Casing adapter and cardan joint for cased drilling

MOVAX CONTROL SYSTEM

- mControl+ LITE
- mControl+ PRO

LEAD AUGERS

Heavy duty/conical

Rock/cylindrical

SERVICE WINCH

CASED DRILLING

Cardan joint

Casing adapter

CAST-IN SITU CONCRETE PILING & SOIL REMOVAL

PILING DRILLS

TECHNICAL DATA

Models KB-70L & 70S

Model		KB-70L	KB-70S
Drilling depth*	**m**	20-25	9-15
Weight**	**kg**	6700-7100	5300-5800
Height**	**mm**	5550	4500
Oil flow rate	**l/min**	100–200	100–200
Oil pressure	**bar**	350	350
Hole diameter	**mm**	420–1500	420–1500
Drill speed range	**rpm**	10–120	10–120
Side tilt angle	**°**	±15	±15
Torque	**kNm**	70	70
Extraction force	**kN**	75	57
Crowd force	**kN**	190	190
Excavator class***	**t**	35–50	(30) 35–50

Lead augers		
Model		rock or heavy duty
Outer diameter	**mm**	420-1500

Accessories (optional)	
Service winch	2,5 ton for handling rebar or reinforcement steel
Casing adapter	tailor-made according to customer specifications
Cardan joint	tailor-made according to customer specifications

** drilling depth dependent on length of kelly bar*
*** excluding adapter and lead auger*
**** stick or boom mounted; excavator suitability to be checked*


MOVAX

PILING DRILLS

TECHNICAL DATA

Models TAD-32 & 51

Model		TAD-32	TAD-51
Drilling depth	m	9	6
Weight*	kg	3200	3200
Height*	mm	3855	3855
Oil flow rate	l/min	75-250	75-250
Oil pressure	bar	350	350
Hole diameter	mm	400–1000	400-1000
Drill speed range	rpm	11–74	11-74
Side tilt angle	°	±30	±30
Torque	kNm	30	50
Extraction force	kN	30	60
Crowd force	kN	15	15
Excavator class**		24–35	24-35

Lead augers		
Model		rock or heavy duty
Outer diameter	mm	400-1000

** excluding adapter and lead auger*
*** stick or boom mounted; excavator suitability to be checked*


INFRANORD

INTRODUCTION

MANIPULATORS

MOVAX excavator mounted manipulators are designed for fast, flexible and efficient handling of different kinds of masts, gantries, and poles as well as a wide range of piles. Based on the patented side grip technology, the MOVAX manipulator is designed for superior maneuverability, safety and accuracy.

Manipulator technology

The manipulator has a rotary gear for a full 360 degree continuous tilt and cylinders for a +/- 60° rotation providing unlimited and precise handling and positioning of profiles.

The manipulator is capable of handling different type of profiles ranging from double-U-, U-, H-, and I- to rectangular and tubular-shapes as well as sheet piles, tubular steel piles, timber piles and precast concrete piles. Soft gripping surfaces are available if required to efficiently prevent damaging sensitive surfaces of masts, gantries or poles.

MOVAX Manipulators are controlled with the **MOVAX Control System** for precision and accuracy, efficiency and safety:

- Easy and exact positioning with integrated inclination sensor and mControl+ (control system) display
- Smooth movements with thumb wheel operated proportional control
- Clamping pressure shown on screen
- Integrated safety lock valves on cylinders
- Safety switch for clamp opening
- Adjustable gripping force

MANIPULATORS

FEATURES

EXCAVATOR-MOUNTED

- Suitable for 20-50 ton excavators.
- Utilizing the hydraulic power and lifting capacity of the excavator or rail roader
- Designed to work on any and all wheeled and crawler-type excavators and rail roaders by utilising and commanding the standard auxiliary hydraulics and/or by connecting to the electronic control of the excavator.

MOVAX MODULAR SYSTEM

- Available for masts, poles gantries and different type of piles including sheet piles, tubular steel piles and precast concrete piles.
- Available with gripping surfaces tailor-made for the profiles to be handled; for example to prevent scratching, etc.

MOVAX CONTROL SYSTEM

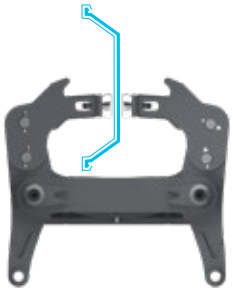
- Operated and monitored with the MOVAX Control System, mControl+ LITE/PRO for precision and accuracy.
- Integrated safety systems.
- Adjustable gripping force for galvanised poles and other sensitive profiles.

MANIPULATORS

MOVAX MODULAR SYSTEM

The MOVAX Modular System enables the use of the same Manipulator for the handling of a wide range of different type of profiles ranging from double-U-, U-, H-, and I- to rectangular- and tubular-shapes as well as sheet piles, tubular steel piles, timber piles and precast concrete piles. Gripping surfaces are available for different type of materials and surfaces.

Standard MOVAX Manipulator clamps are available for sheet piles, tubes and square sections. Also customised clamps are available upon request.



SHEET PILE CLAMPS

For sheet piles, H-beams and similar
W400–1600 mm, H100–1000 mm.

TUBE CLAMPS

For tubular steel pipes OD 88.9–1220 mm.

CUSTOM CLAMPS

For round, square, hexagonal, etc. OD up to 1220 mm.
Also for conical shapes.

With soft gripping surfaces to protect
the surface coating.

MANIPULATORS

TECHNICAL DATA

Technical data		MPM-4000
Weight (excl. adapter)	kg	1550 - 1750
Height	mm	1562
Depth*	mm	1700 - 2300
Width*	mm	960 - 1400
Rotation angle	°	+/-60
Tilting angle	°	360
Tilting torque	Nm	20000
Relief valve pressure max	bar	350
Minimum pressure required	bar	180
Required oil flow	l/min	85
Excavator class	t	18–35
Maximum working load	kg	4000

the exact dimension depends on the selected clamp type

Suitable profiles		
Square sections and H-beams	size	H100–H1000 100x100 up to 650x650
Tubular/hexagonal sections	size	88,9–1220 mm
Sheet piles	size	max depth 265 mm
Timber poles and piles	size	160–420 mm

INTRODUCTION

MULTI-TOOL PILING LEADERS

MOVAX MPL multi-tool piling leaders provide an excavator mounted, versatile, multi-tool solution for a wide range of piling requirements in a variety of site and soil conditions, and for different types of piles and piling technologies ranging from driven (vibratory & impact hammer pile driving) and bored piles (CFA) to drilled (DTH) piles – as well as, stone columns and for pre-augering.

The MOVAX MPL multi-tool piling leader is customised in accordance with customer-specific requirements:

- The same MOVAX MPL multi-tool piling leader can be utilised for different piling tasks with easily and quickly changeable tools ranging from vibratory pile drivers to impact hammers and rotary drives for pre-augering, CFA and DTH.
- The leader can be shortened to allow for low head room work; or when shorter piling or augering depths are required.
- The MOVAX MPL multi-tool piling leader is designed to work on a standard excavator without any changes thus enabling the excavator to be used for other purposes according to its original design.
- The local transportation requirements are taken into account in the customisation of the multi-tool piling leader.

	MPL-400	MPL-300
Type	Heavy duty, multi-purpose piling leader	Multi-purpose piling leader
Effective piling length/drilling depth	12 m	12 m
Tools	Vibratory pile driver Impact-type piling hammer Rotary drive for pre-augers CFA	Vibratory pile driver Impact-type piling hammer Rotary drives for pre-augers CFA DTH Vibrolance*
Mounting (excavator class)	Boom (35-50 ton)	Boom (30-50 ton) Stick (35-50 ton)
Control	mControl+ Pro	mControl+ Pro
Information management	mFleetManagement mLogbook	mFleetManagement mLogbook

**in cooperation with PTC*

NOTE!

Tailor-made leaders are available for vibratory pile driver operation up to a maximum effective pile length of 16 meters. The maximum leader length is dependent on the excavator size and stability.

MULTIPLE PILING TASKS


MOVAX
BÜCHEL
gut gebaut.

MULTI-TOOL PILING LEADERS

FEATURES

EXCAVATOR-MOUNTED

- Excavator mounted, heavy duty multi-tool piling leader
  with tooling for a wide range of piling tasks.
- Available for a wide range of excavators starting from
  30 tons and larger.
  - MPL-300 for 30 ton and larger excavators
  - MPL-400 for 40 ton and larger excavators
- Boom or stick mounted based on excavator stability. Delivered with excavator- and mounting specific adapter.
- Designed to work on any and all crawler-type excavators and rail roaders by utilising and commanding the standard auxiliary hydraulics and/or by connecting to the electronic control of the excavator - with all leader and tooling related hydraulics integrated onto the leader or tooling itself.

MOVAX CONTROL SYSTEM

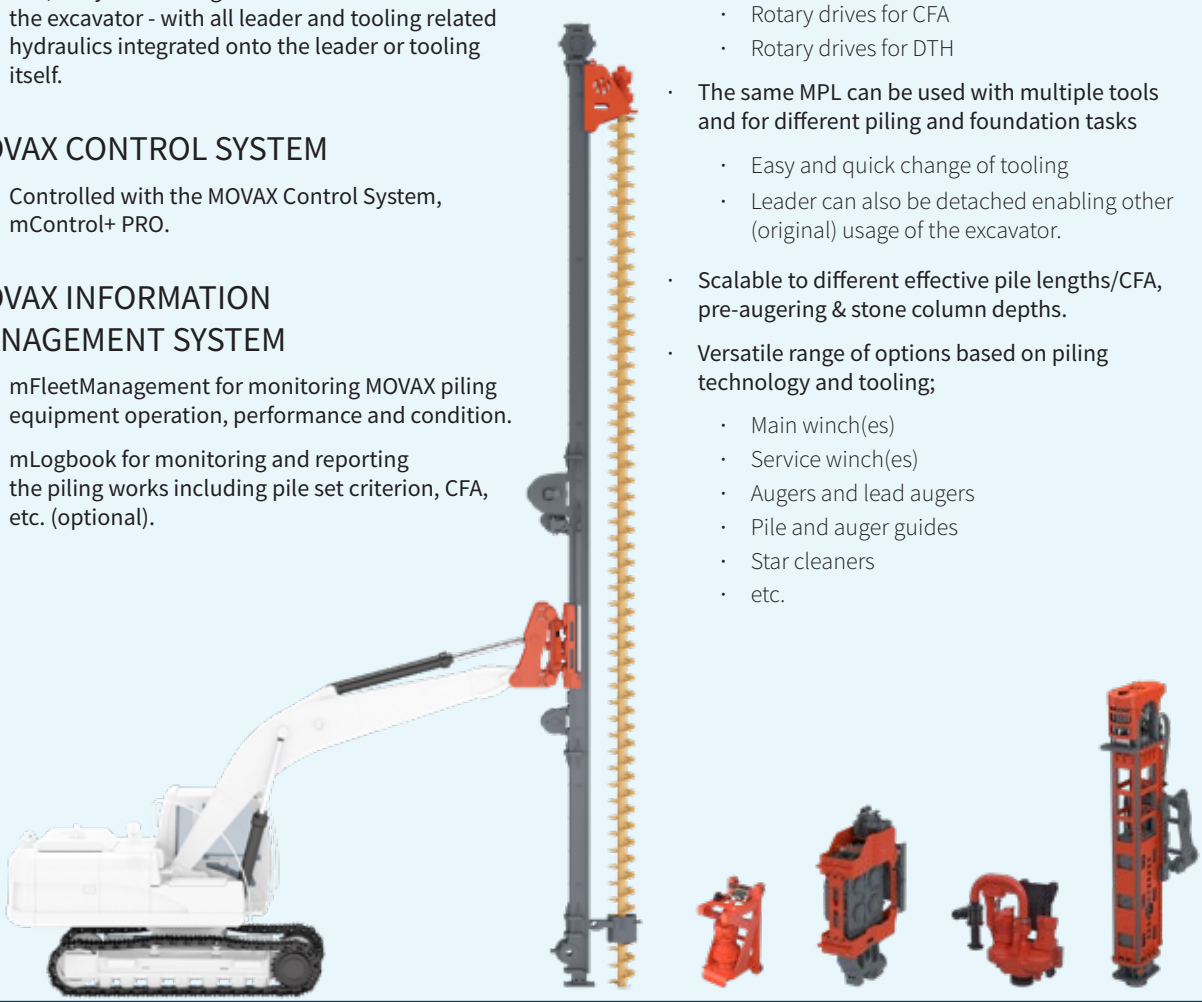
- Controlled with the MOVAX Control System, mControl+ PRO.

MOVAX INFORMATION MANAGEMENT SYSTEM

- mFleetManagement for monitoring MOVAX piling equipment operation, performance and condition.
- mLogbook for monitoring and reporting the piling works including pile set criterion, CFA, etc. (optional).

VERSATILE, MULTI-TOOL PILING SOLUTION

- Suitable for a wide range of piling applications, including
  - Driven piles (sheet piles, tubular steel piles, H-beams and precast concrete piles)
  - Bored piles (CFA)
  - Drilled piles (DTH)
  - Pre-augering
  - Stone columns
- A wide range of tooling, including
  - Vibratory pile drivers
  - Hydraulic hammers
  - Hydraulic double-acting piling hammers
  - Rotary drives for pre-augering
  - Rotary drives for CFA
  - Rotary drives for DTH
- The same MPL can be used with multiple tools and for different piling and foundation tasks
  - Easy and quick change of tooling
  - Leader can also be detached enabling other (original) usage of the excavator.
- Scalable to different effective pile lengths/CFA, pre-augering & stone column depths.
- Versatile range of options based on piling technology and tooling;
  - Main winch(es)
  - Service winch(es)
  - Augers and lead augers
  - Pile and auger guides
  - Star cleaners
  - etc.



MULTI-TOOL PILING LEADERS

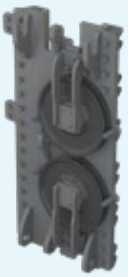
MOVAX MODULAR SYSTEM

MOVAX MPL Multi-tool piling leaders are of a modular design and thus suitable for a wide range of applications and piling technologies. The modularity applies to the tooling which can easily and quickly be changed to allow for the use of the same leader for multiple piling tasks – and to the piling depth: the leader can be shortened for instance for easier transportation and for low head site.

PRE-AUGER

VIBRATORY PILE DRIVER

PILING HAMMER



MOUNTING BRACKET

CFA ROTARY DRIVE

MOVAX MPL Multi-tool piling leaders are available in two basic configurations – MPL-300 and MPL-400 – which are suitable for different size excavators; depending on the excavator, which must always be checked for hydraulic power and stability, the MPL is either stick or boom mounted.

Depending on the piling application and tooling, MPL Multi-tool piling leaders are available with different options.

OPTIONS

Main winch available with different lifting force *(1x or 3x winch line pull)*.

MPL available also with optional service winch for lifting piles, augers and reinforcements.

Mounted directly onto excavator, stick or onto main boom *(depending on excavator class)*.

Excavator- and mounting-specific adapter included in the delivery.

Available with tool specific accessories; *for example CFA auger star cleaner*

Available with pile or auger guide for accurate positioning and verticality.

Pile clamps either mechanical or hydraulic.

Lead augers and augers are available for different soil conditions and with different diameters.

MULTI-TOOL PILING LEADERS

SELECTION

The MOVAX MPL Multi-tool piling leader (MPL-300, MPL-400) and its associated tooling is selected based on the following:

- Excavator brand and model
- Piling technology & tooling options; multiple tooling options can be used on the same MPL multi tool piling leader
- Pile and augering dimensions (weight, length/depth, diameter, etc.)
- Soil and site conditions
- Transportation conditions & requirements

The MOVAX MPL Multi-tool piling leader is always customised based on the customer specific requirements.

Excavator (carrier)

The excavator class (brand & model) effects the selection of the MOVAX Multi-tool piling leader configuration and the correct model (MPL-300 or MPL-400). The excavator class also effects the possible mounting options: boom or stick.

note!
The excavator suitability (hydraulic power/stability) to be checked.

Piling technology & tooling options

The same MOVAX MPL Multi-tool piling leader can used for multiple piling technologies and with different tooling.

Pre-auger rotary drive

MPL-300	Torque
T-5000	50 kNm
MPL-400	**Torque**
T-5000	50 kNm
T-10000	100 kNm

Options	
Augers & lead augers (300-600 mm)	- heavy duty, conical - rock, cylindrical
Auger guides	

CFA Rotary drive

MPL-300	Torque
RHX-52	50 kNm
MPL-400	**Torque**
RHX-52	50 kNm
RHP-10	100 kNm

Options	
Augers & lead augers (300-600 mm)	- heavy duty, conical - rock, cylindrical
Auger drives	
Rotary drive	- electrical shifting - flushing head & pipe - pressure measuring device
Concrete flow meter	
mLogbook	

Vibratory pile driver

MPL-300	Centrifugal force
TG-120	718 kN
MPL-400	**Centrifugal force**
TG-120	718 kN
TG-160	912 kN

Options	
Bottom clamp	pads for different type of piles
Pile guides	

Piling hammers

MPL-300	Impact energy
DH-15	15 kNm
DH-25	25 kNm
MPL-400	**Impact energy**
DH-15	15 kNm
DH-25	25 kNm
DH-35	35 kNm
DH-45	45 kNm

Options
Pile caps for different type of piles
Pile guides

MULTI-TOOL PILING LEADERS

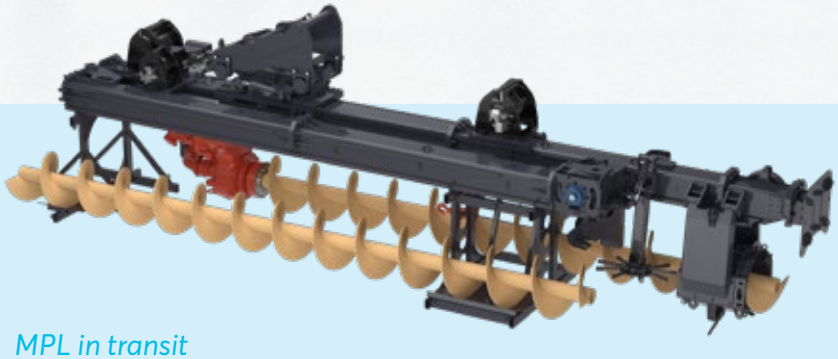
TECHNICAL DATA

Model		MPL-300	MPL-400
Weight (without adapter & tool)	kg	5000-5250	7000–8000
Height	m	15	15
Forward inclination	°	20	20
Backward inclination	°	20	20
Tilt	°	8	8
Rotation (optional)	°	60	60
Winches			
Main winch	kN	57	120
Crowd winch	kN	57	120
Aux winch	kN	25	57
Crowd system			
Max. pull down force	kN	114	120
Max. extraction force	kN	171	120/360
Transport (w/o excavator)			
Length	mm	8600	8700
Width	mm	1800	2900
Height	mm	2000	2900
Weight (w/o tool)	kg	5300-5550	7000–8000
Excavator class	t	30-50	35–50
Accessories/options			
Mechanical or hydraulic guides			
Star (auger) cleaner			
Pulley system depending on tooling/application			

NOTE!

Weights and dimensions - and other features -are tentative and provided for general information purposes only. The MPL leader will always be customised to meet customer specific requirements.

Excavator suitability (hydraulic capacity/stability) to be checked.



MPL in transit


MOVAX
CAT

MULTI-TOOL PILING LEADERS, TOOLING

TECHNICAL DATA

Piling hammers

Model		DH-15	DH-25	DH-35	DH-45
Total weight	kg	2800	3700	4900	5850
Ram weight	kg	1360	2060	3100	4000
Blows per minute	1/min	0-100	0-100	0-100	0-100
Impact energy	kNm	0-15	0-25	0-35	0-45
Drop height	m	0-1,2	0-1,2	0-1,2	0-1,2
Total height	mm	3850	4460	4460	4930
Frame width	mm	500	500	650	650
Transport width	mm	1200	1200	1200	1200
Transport depth	mm	1870	1870	1870	1870
Oil flow	l/min	80-120	80-120	80-120	80-120
Operating pressure	bar	150	200	250	280
Pressure relief set, max	bar	350	350	350	350
Suitable piles					
Sheet piles	U and Z, max length 12 m				
H-beams	up to HEB500, max length 12 m				
Tubular steel piles	up to Ø 508 mm, 12 m				
	up to Ø 762 mm, 8 m				
Precast concrete	up to 250 x 250 mm, max length 12 m				

Mounting bracket

The same mounting bracket can be utilized for different tooling mounted on the MPL multi-tool piling leader.

Top cover

The same top cover can be used when mounting the MOVAX DH piling hammer directly onto the excavator.

Lower frame

Pile caps

Pile caps are available for different type of piles – ranging from sheet piles and tubular steel piles to precast concrete piles.

MULTI-TOOL PILING LEADERS, TOOLING

TECHNICAL DATA

Vibratory pile drivers

Model		TG-120	TG-160
Total weight (transport)	kg	2460	2775
Total weight (operating)	kg	2385	2700
Dynamic weight	kg	1810	2100
Dynamic weight (excl. clamp)	kg	1230	1280
Height	mm	2500	2500
Depth	mm	1330	1330
Width	mm	460/410*	460/410*
Eccentric moment	kgm	12,6	16
Frequency	1/s	2300	2300
Line pull, max	kN	200	200
Amplitude	mm	14,5/20**	15,2 /25**
Centrifugal force	kN	718	912
Oil flow	l/min	240	300
Operating pressure, max	bar	350	350
Excavator class	ton	35-50	42-50
Suitable piles			
Sheet piles		U and Z, max length 12 m	
H-beams		up to HEB500, max length 12 m	
Tubular steel piles		up to Ø 508 mm, 12 m	
		up to Ø 762 mm, 8 m	

** total/along piling line*
*** with/without bottom clamp*


CAT
A2

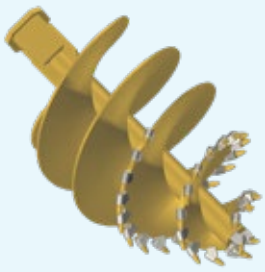
MULTI-TOOL PILING LEADERS, TOOLING

TECHNICAL DATA

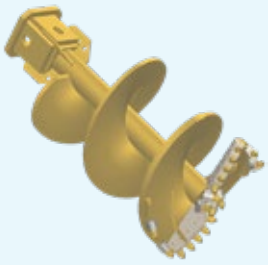
Pre-auger rotary drive

Model		PD-50	PD-100
Total weight	**kg**	600	1000
Torque, max	**kNm**	50	100
Drilling speed	**rpm**	0-40	0-40
Connecting pin, hexagonal	**mm**	70	130
Oil flow	**l/mm**	240	240
Maximum pressure	**bar**	350	350
Pre-augering			
Depth	**m**	12	12
Hole diameter	**mm**	300-600	300-800
Lead augers	**size, mm**	300-600	
	type	heavy duty, conical	
		rock, cylindrical	
Augers	**length, m**	3 or 6	
	size, mm	300-600	
	type	heavy duty, conical	
		rock, cylindrical	
Connection			
Auger guide	Each auger diameter requires auger guide of corresponding size.		

Lead augers

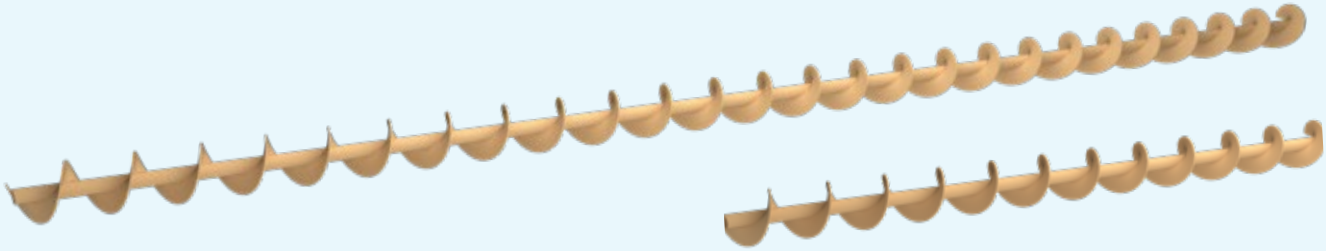


Heavy duty/conical



Rock/cylindrical

Augers



MULTI-TOOL PILING LEADERS, TOOLING

TECHNICAL DATA

CFA rotary drive

Model		RHP-10	RH52X
Total weight	**kg**	1800	1200
Torque, max	**kNm**	100	52
Drilling speed	**rpm**	0-50	0-50
Connection		bolt-on flange	
Oil flow	**l/mm**	250	250
Maximum pressure	**bar**	320	320
CFA			
Depth	**m**	12	12
Hole diameter	**mm**	300-800	300-600
Rotary drive	- electrical shifting - flushing head & pipe - pressure measuring device		
Concrete flow meter			
mLogbook			
Lead augers	**size, mm**	300-600	
	type	heavy duty, conical rock, cylindrical	
Augers	**lenght, m**	3 or 6	
	size, mm	300-600	
	type	heavy duty, conical rock, cylindrical	
Auger guide	Each auger diameter requires auger guide of corresponding size.		

The Continuous Flight Auger (CFA) rotary drive is supplied with the following options:

Options

1. Pressure measuring device
2. Flushing pipe
3. Concrete flow meter
4. Flushing head
5. Rotary head
6. Adaption kit for concrete pipe

MULTI-TOOL PILING LEADERS, TOOLING

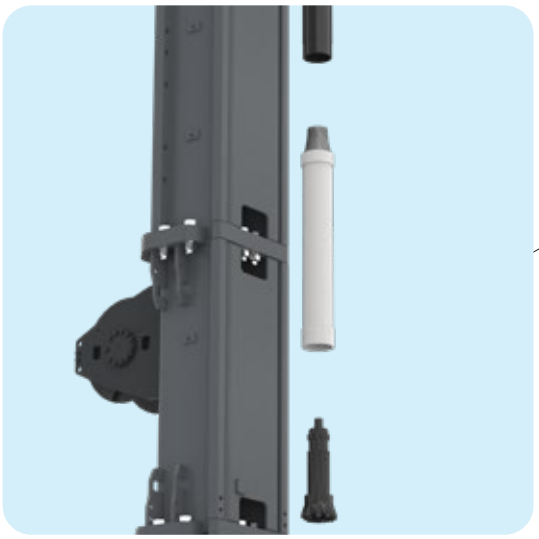
TECHNICAL DATA

Rotary drives for DTH

Model		GEONEX GR15	GEONEX GR50
Max. casing diameter	mm	323,9	610
Weight	kg	200	650
Length	mm	363	520
Width	mm	400	580
Height	mm	370	615
Thread connection		Api Reg 2 3/8”F, Api Reg 3 1/2”F, Api Reg 4 1/2”F	Api Reg 3 1/2”F, Api Reg 4 1/2”F, Api Reg 6 5/8” F, Hex heads
Max. oil flow	l/min	270	300
Max. oil pressure	bar	250	250
Max. torque, slow gear	kNm	min 7,5 / max 15	min 14 / max 55
Max. torque, fast gear	kNm	min 5 / max 10	min 9,3 / max 37,5
Max. rotation speed, slow gear	rpm	min 60 / max 30	min 57 / max 14
Max. rotation speed, fast gear	rpm	min 90 / max 45	min 85 / max 21

Suitable DTHs (Down-the-Hole-Hammers)

Model		DTH size	DTH size
139,7	mm	4"	4"
168,3	mm	5"	5"
219,1	mm	6"/7"	6"/7"
273	mm	8"	8"
323,9	mm	10"	10"
406,4	mm	NA	12"
508	mm	NA	15"
610	mm	NA	18"



MULTI-TOOL PILING LEADERS, TOOLING

TECHNICAL DATA

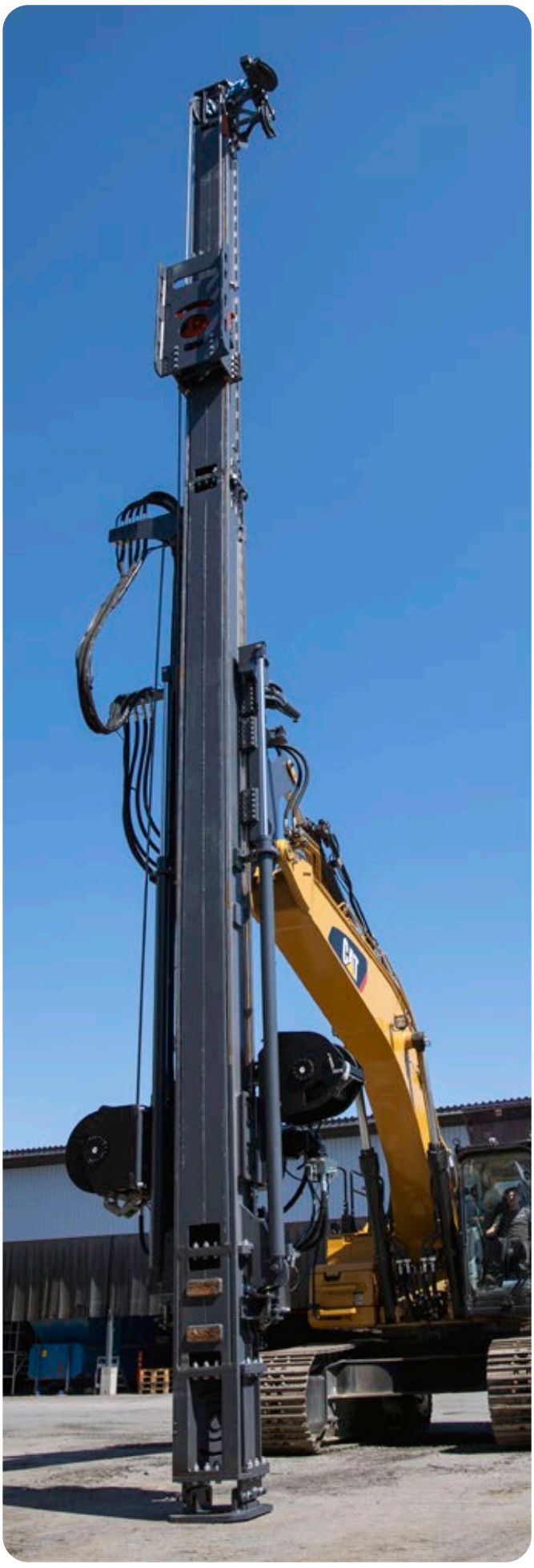
Vibrolance

Model		BFS18-E8
Stone column diameter	mm	450-800
Treatment depth	m	5/7/8/9/10/11 *with modular extension tubes*
Hydraulic power	kW	110
Eccentric moment	kg/m	1,8
Operational frequency	Hz/RPM	50/3000
Centrifugal force, max.	kN	178
Oil flow, max.	l/min	189
Working pressure, max.	bar	350
Pull up, max.	kN	171
Pull down, max.	kN	114
Stone tank	m^3	1,13
Total weight without gravel*	kg	3595-5310
Max. weight with gravel*	kg	5723-7822
Recommended gravel	mm	10-40
Modular sys. extension tubes		
2 meters	kg	585
4 meters	kg	1150
5 meters	kg	1345

MOVAX Oy and PTC co-operate to provide a total excavator-mounted vibrolance solution.

PTC, founded in 1928, is a French company specializing in the manufacturing of construction equipment for deep foundations and ground improvement.

For more information, visit ptc.fayat.com/en.




JCB

INTRODUCTION

COLUMN STABILISATION LEADERS

MOVAX excavator-mounted **MSL column stabilisation leaders** provides a versatile solution for soil improvement in a wide range of site and soil conditions when utilising dry binder material.

MOVAX column stabilisation leader and its tooling are designed to work on a standard excavator with normal auxiliary hydraulics and are controlled with the MOVAX Control System.

MOVAX MSL column stabilisation leaders are based on a modular concept and always customised to meet customer-specific requirements.

COLUMN STABILISATION LEADERS

FEATURES

EXCAVATOR-MOUNTED

- Excavator mounted, heavy duty column stabilisation leader.
- Available for a wide range of excavators starting from 30 tons and larger.
- Boom or stick mounted based on excavator stability. Delivered with excavator- and mounting specific adapter.
- Designed to work on any crawler-type excavators and rail roaders by utilising and commanding the standard auxiliary hydraulics and/or by connecting to the electronic control of the excavator - with all leader and tooling related hydraulics integrated onto the leader or tooling itself.

CUSTOM DESIGN BASED ON STANDARDIZED MODULES

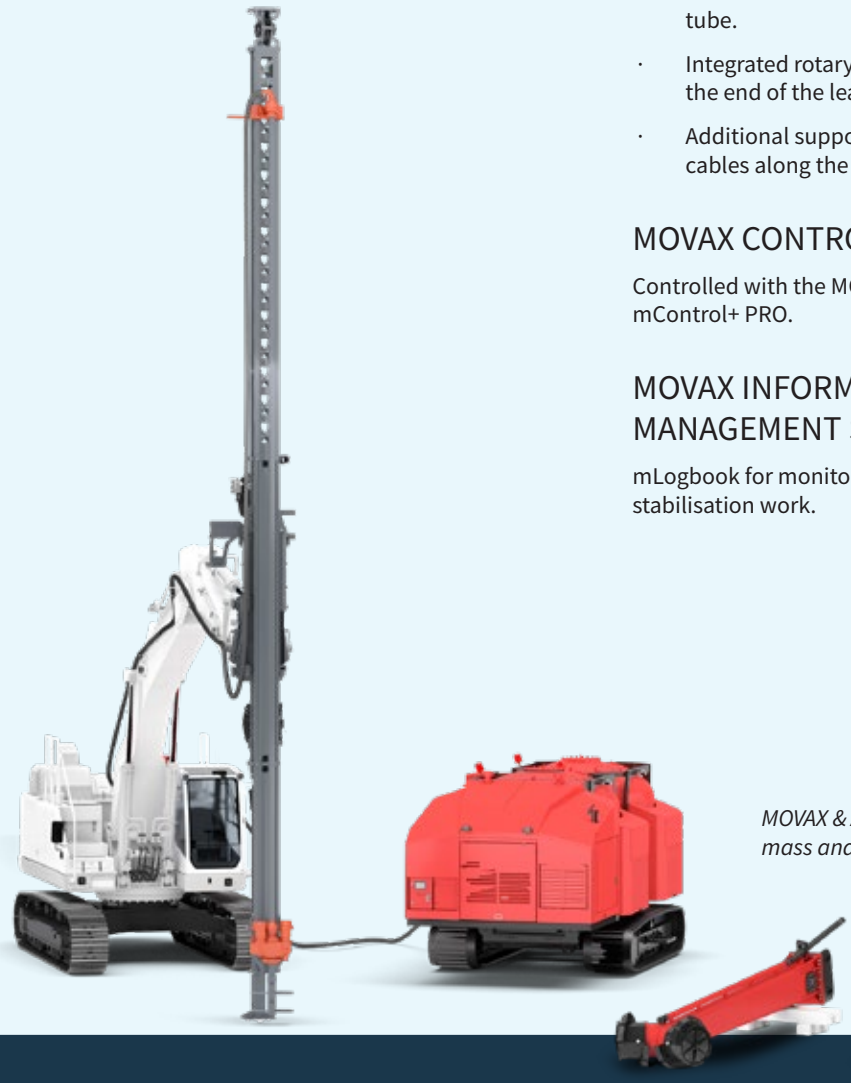
- Maximum depth 20-25 meters depending on excavator size; due to modular design the leader can be shortened all the way down to 12 meter effective depth.
- Column diameters between Ø500–800 mm due to interchangeable mixer tip.
- Mixer tip vertical movement is achieved with two hydraulic winches.
- Binder feed at the top of the mixing rod to which a rotating joint for the binder hose is integrated.
- Roller mechanism on the rotary drive to apply torque and simultaneously allow feedthrough of the mixing tube.
- Integrated rotary drive and telescopic bottom foot at the end of the leader.
- Additional support for binder feed hoses and electric cables along the leader.

MOVAX CONTROL SYSTEM

Controlled with the MOVAX Control System, mControl+ PRO.

MOVAX INFORMATION MANAGEMENT SYSTEM

mLogbook for monitoring and reporting the column stabilisation work.



MOVAX & ALLU co-operate to deliver a complete mass and column stabilisation solution.

SOIL IMPROVEMENT

CAT
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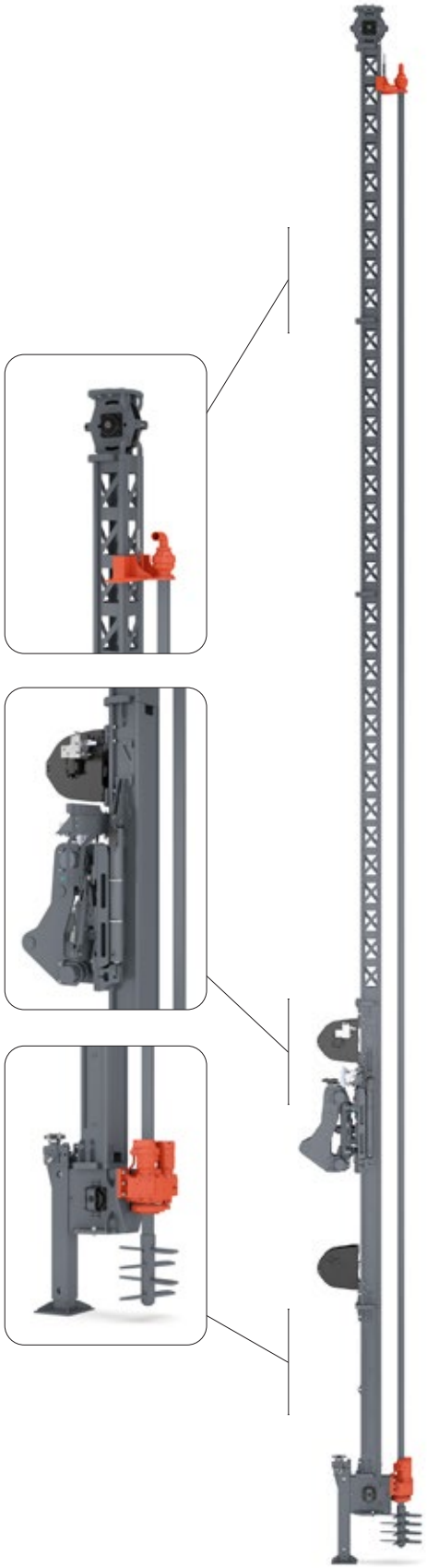
COLUMN STABILISATION LEADERS

TECHNICAL DATA

Model		MSL-300
Column depth	**m**	12–25
Column diameter	**mm**	500–800
Weight (w/o adapter)	**kg**	6500
Height	**m**	15–28
Tilt angle	**o**	+/- 8
Winches		
Main winch	**kN**	57
Crowd winch	**kN**	57
Crowd system		
Max. pull down force	**kN**	57
Max. extraction force	**kN**	57
Speed	**m/min**	0–30

Rotary drive		
Torque	**kNm**	20
Rotational speed	**rpm**	180–200
Features/instrumentation		
· rotation speed		
· rotation torque		
· column depth/ascent rate		
· driving angle		

Mixer/mixer tip		
Mixer tip levels	**pcs**	4
Diameter	**mm**	500-800, nominal
Binder feed	**kg/s**	3,0
Compressed air, pressure	**bar**	10
Compressed air, flow rate	**m³/min**	6,5
Ascent rate	**mm/r**	20
Rotational velocity	**rpm**	180–200
Injection pipe		
length	**m**	21,3–26,3
inner diameter	**mm**	34
Support pipe		
length	**m**	21,3–26,3
size / wall thickness	**mm**	100 x 100 mm square/8 mm



NOTE!
Detailed technical data to be provided on case by case basis.
Column depth and other technical data dependent on excavator size.


DOOSAN
TIELOISKA
TIELOISKA
DX 350 LC

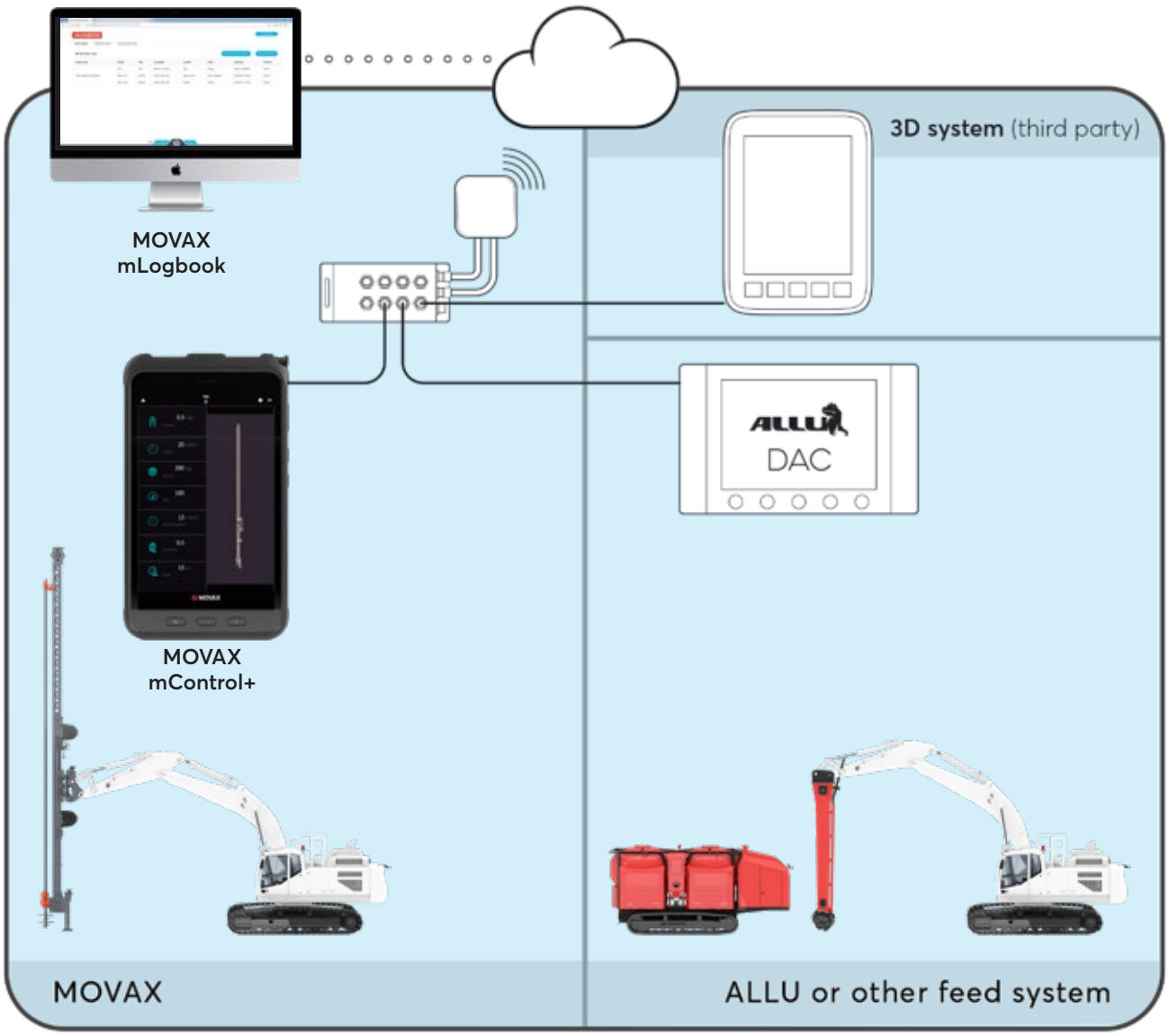
COLUMN STABILISATION LEADERS

MONITORING & REPORTING

The column stabilisation process is controlled and monitored using the **MOVAX mControl+ PRO** — a control system designed to communicate with external systems such as ALLU's DAC control system and different 3D systems (the connectivity will be developed on a case-by-case basis).

The control, monitoring and reporting system consists of the following systems which communicate with each other over the CAN-bus:

- MOVAX mControl+ control system
- MOVAX mLogbook reporting system
- ALLU DAC control system or other feed system
- Third party 3D system connectivity



PLANNING

The stabilisation drawings and plans are accessed through a 3rd party 3D-system. The planned location of mass stabilisation field and the stabilisation columns can be viewed by the operator on the display.

MONITORING

The work flow is monitored using the MOVAX mControl+ and the 3rd party 3D-system.

The monitoring of location and positioning data is done with the 3rd party 3D-system display.

The mControl+ display is utilized to monitor all other stabilisation parameters, such as;

- **Column stabilisation**: for example binder quantity per column, ascent rate and rotational speed
- **Mass stabilisation**: for example binder quantity, feed and mixing times

The results of the stabilisation work can be viewed on the displays of the MOVAX mControl+ and the 3rd party 3D-system. The realised positioning data is shown in the 3rd party 3D-system, whereas all other reported parameters can be found in the MOVAX mControl+ system.

REPORTING

The mass and column stabilisation work is reported utilizing the 3rd party 3D-system as well as MOVAX mLogbook reporting system.

The data is sent from the mControl+ system to a cloud-based server, *mCloud* (servers are located in Finland), where all the information is stored. Users can access the data and ready-made reports can through a password-protected, web-based interface.

The MOVAX mLogbook-reporting system also includes efficient tools for printing (PDF-format) and exporting the data to, for instance, Microsoft Excel.

mControl+ is always installed so that the original functionality of the excavator is maintained – ie. no changes are made to the excavator and it can be used for all its other intended or original usage.

INTRODUCTION

MOVAX CONTROL SYSTEM

The MOVAX Control System, **mControl+**, links the carrier (excavator, rail roader or equal) with the MOVAX piling equipment. It is a vital and inseparable part of the MOVAX way-of-piling resulting in higher productivity, a high-quality end-result, the safety of the piling process - and ensures the maximum availability of the MOVAX piling equipment.

mControl+ controls the standard auxiliary pilot circuit of the excavator, which in turn controls the excavator's auxiliary hydraulics - thus controlling all the functions of the MOVAX piling equipment. mControl+ utilizes inclination and pressure sensors to monitor and control the operation of the MOVAX piling equipment and the pile driving process.

The same mControl+ control system is used to operate all MOVAX piling equipment.

Productivity & Efficiency

mControl+ enables the operator to efficiently and accurately control the MOVAX piling equipment for higher productivity.

mControl+ is available in two versions:

- mControl+ PRO with automatic control
- mControl+ LITE

The oil flow to different functions of both the MOVAX piling equipment and the excavator is automatically optimised by the mControl+ system, as required during the pile driving process.

This also results in the highest possible fuel efficiency and economy.

Precision & Accuracy

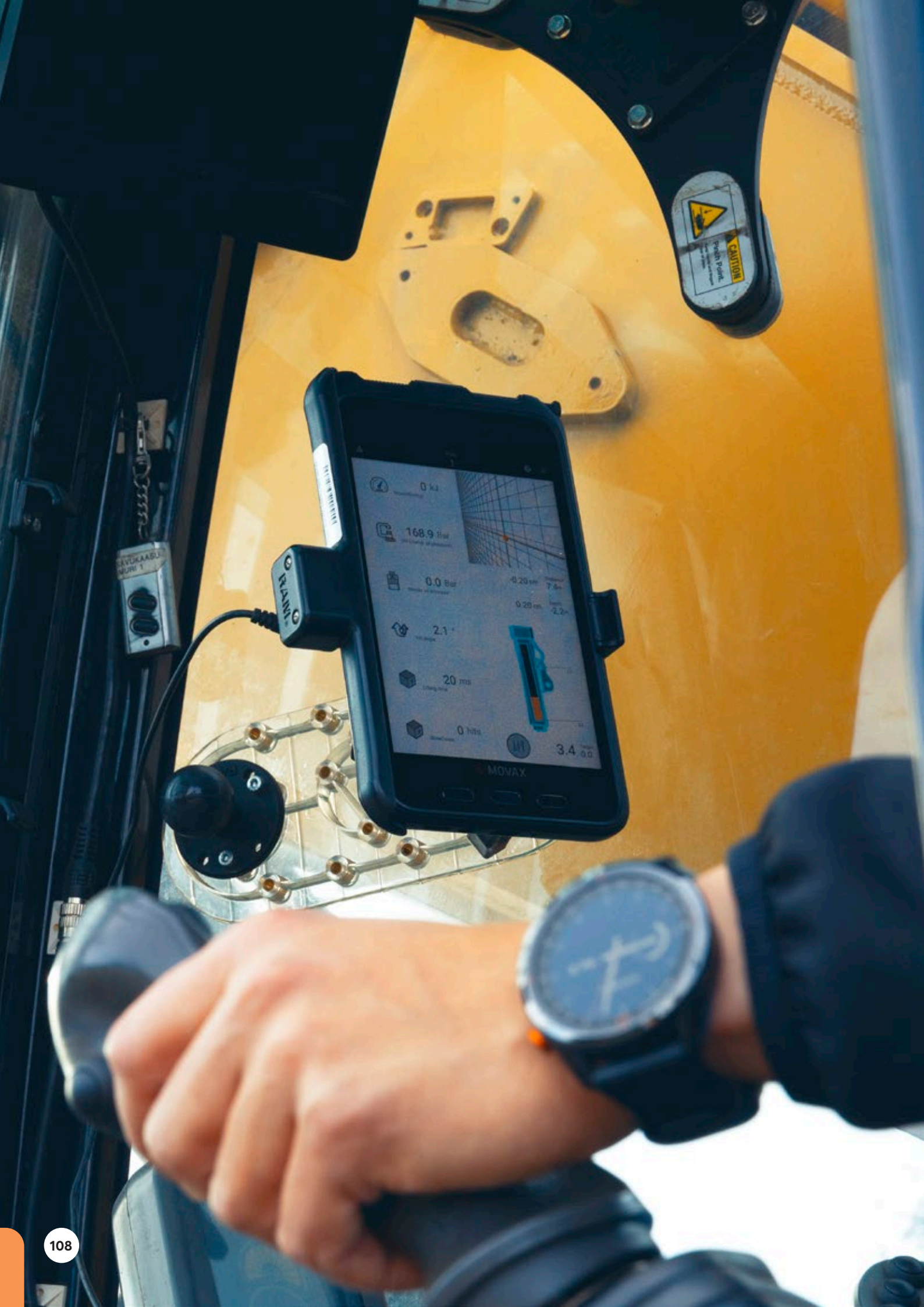
Smooth movements, precision and accuracy of the pile installation are achieved with the proportional control of mControl+.

mControl+ also displays vital information about the pile driving process, supporting the operator in achieving not only efficiency, but precision and accuracy also.

Safety

The operational and safety-related parameters of the MOVAX piling equipment are set and monitored by the mControl+ system to ensure the utmost safety of the pile driving process.

MOVAX Multi-tool piling leaders require mControl+ PRO


CAUTION
Pinch Point
0 kJ
168.9 Bar
0.0 Bar
2.1 °
20 ms
0 hits
3.4
MOVAX

FEATURES

EXCAVATOR MOUNTED

Commanding the standard auxiliary hydraulic circuit of the excavator. The excavator's auxiliary pilot circuit is controlled optionally:

- Hydraulically, with a hydraulic valve block
- Electronically, with a PWM-module
- Through a CAN interface

Excavator brand & model specific 'accessory kits' are available for connecting mControl+ to the excavator.

STATE OF THE ART, ADVANCED CONTROL SYSTEM

Based on proportional control for speed, precision and accuracy;

- **mControl+ PRO**, automatic control system with tip-control
- **mControl+ LITE**, basic control system

note! MOVAX MPL Multi-tool piling leaders require mControl+PRO

ERGONOMIC AND INFORMATIVE USER INTERFACE

- Provides valuable information related to operation, performance, safety and availability
- Color display
- Easy-to-read graphical symbols
- User-friendly menus for calibration and performance optimization
- All functions are effortlessly controlled using the switches and thumb wheels on the control grips

EASY AND EFFICIENT DIAGNOSTICS

Available directly on the mControl+ display.

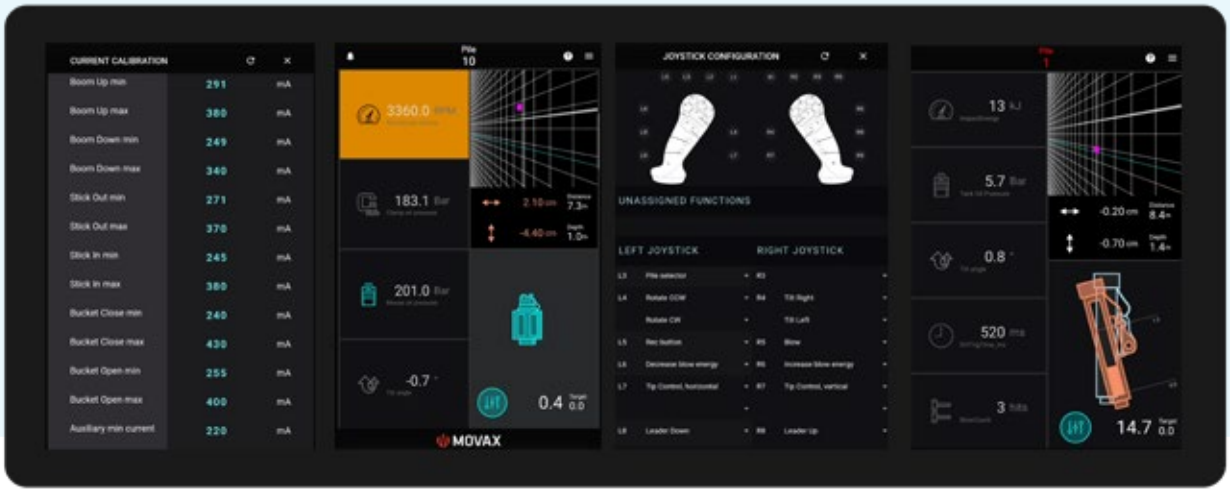
SAFETY

Integrated safety features.

CONNECTIVITY TO MOVAX INFORMATION MANAGEMENT SYSTEM

- mFleetManagement
- mLogbook

note! mLogbook requires mControl+PRO



INTRODUCTION

mControl+ PRO

mControl+ PRO is a state-of-the-art, automatic control system featuring *the tip-control™* technology.

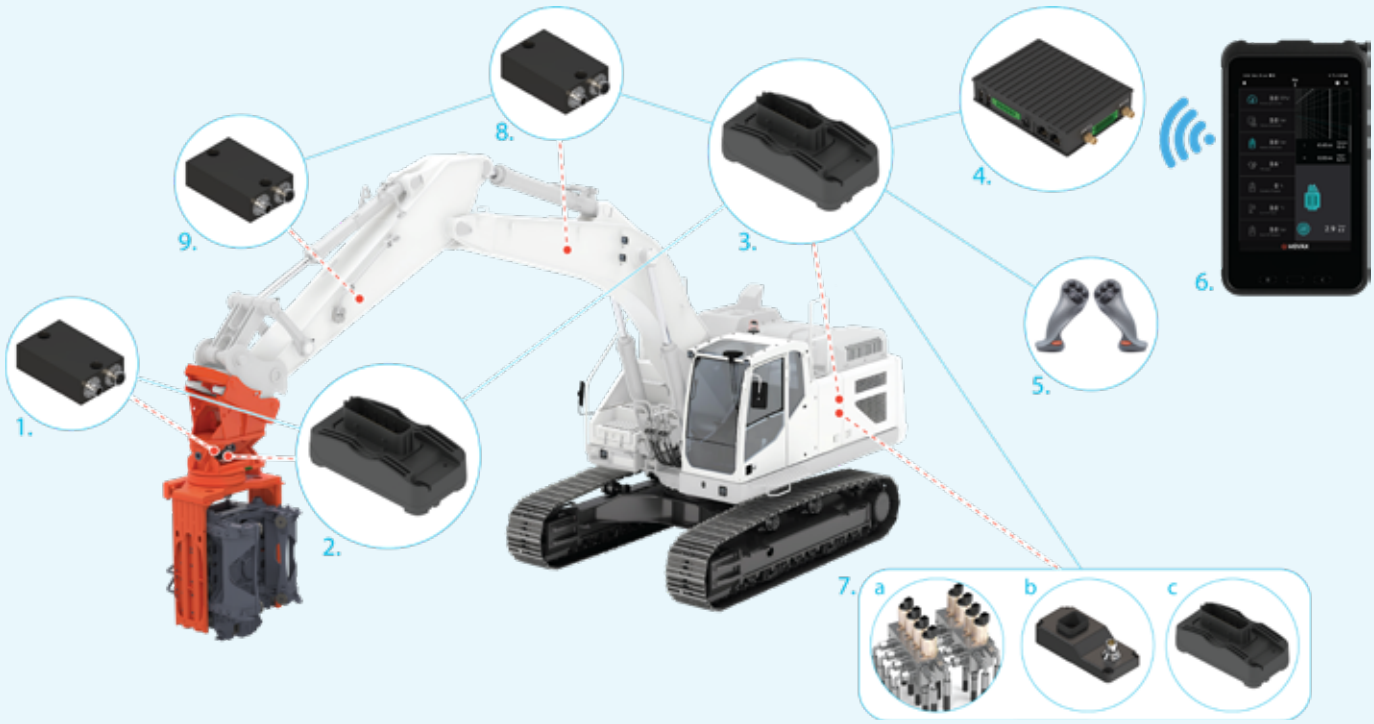
The tip-control's advanced computing technology works in tandem with boom- and stick-mounted angle sensors, and controls the excavator's auxiliary hydraulics utilizing either the proportional pilot valves, a PWM controller, or a CAN pilot circuit/ interface.

mControl+ PRO is installed onto the excavator without making any changes to the original functionality of the excavator whatsoever.

The automatic control of the mControl+ PRO assists the operator in achieving a faster and more efficient, high-quality piling installation. The system also provides valuable information, further assisting the operator as well as ensuring the highest possible availability protecting the MOVAX piling equipment.

mControl+ PRO is utilized to control all MOVAX piling equipment - including SG side grip pile drivers, DH piling hammers, TAD/KB piling drills and MPM manipulators – and MPL multi-tool piling leaders and MSL column stabilisation leaders.

mControl+ PRO



1. MOVAX Angle sensor (MxS)
2. MOVAX Module (MxM)
3. Excavator module (ExM)
4. MIMS Module
5. Control grips

6. mControl+ Display
7. Pilot circuit control
a) Hydraulic valve block
b) PWM Control
c) CAN Interface

8. Boom angle sensor
In case of two-piece boom one additional sensor is required
9. Stick angle sensor

mControl+ PRO

FEATURES

Automatic Control System

- Controls all the main functions of the MOVAX piling equipment and MOVAX customised solutions
- Automatic control for MOVAX SG side grip pile drivers and DH piling hammers based on state-of-the-art tip control technology

Informative Control & Monitoring System

- Comprehensive information about the pile driving process - from verticality to refusal
- Detailed information for monitoring of equipment operation, performance and condition

Display

- Android tablet, 8”
- Color display
- Ergonomic user interface for set-up/input data, monitoring and operation

Control grips

- Ergonomic control grips with 2- or 3-rollers and buttons which allow complete operation with a single grip.
- Extra buttons and rollers are provided for accommodating functions from the excavator’s original handles, as necessary.

Control modules

- Excavator cab-mounted EXM controls the excavator’s auxiliary hydraulics with either proportional valves, a PWM controller or a CAN bus control circuit.
- Factory installed MXM delivered with the MOVAX equipment, controls the hydraulic valves on the MOVAX piling equipment.

Angle sensors

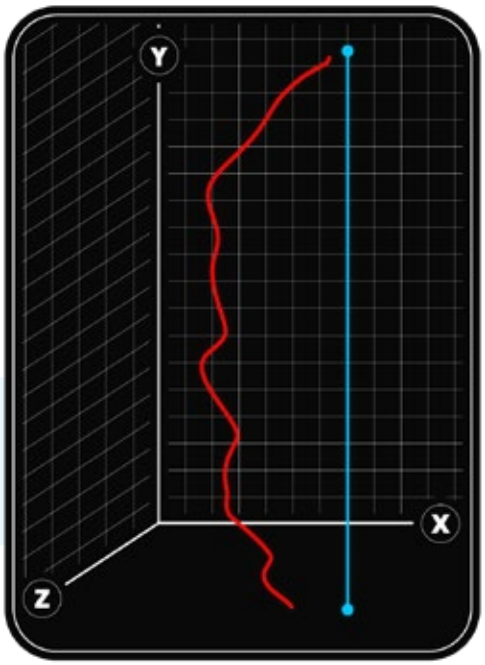
- Highly accurate angle and distance information designed for extreme vibration conditions.
- nextGen 360° angle sensors with gyroscopes for maximal accuracy.
- Additional sensor(s) for excavators with a two-piece boom

mControl+ PRO

AUTOMATIC CONTROL

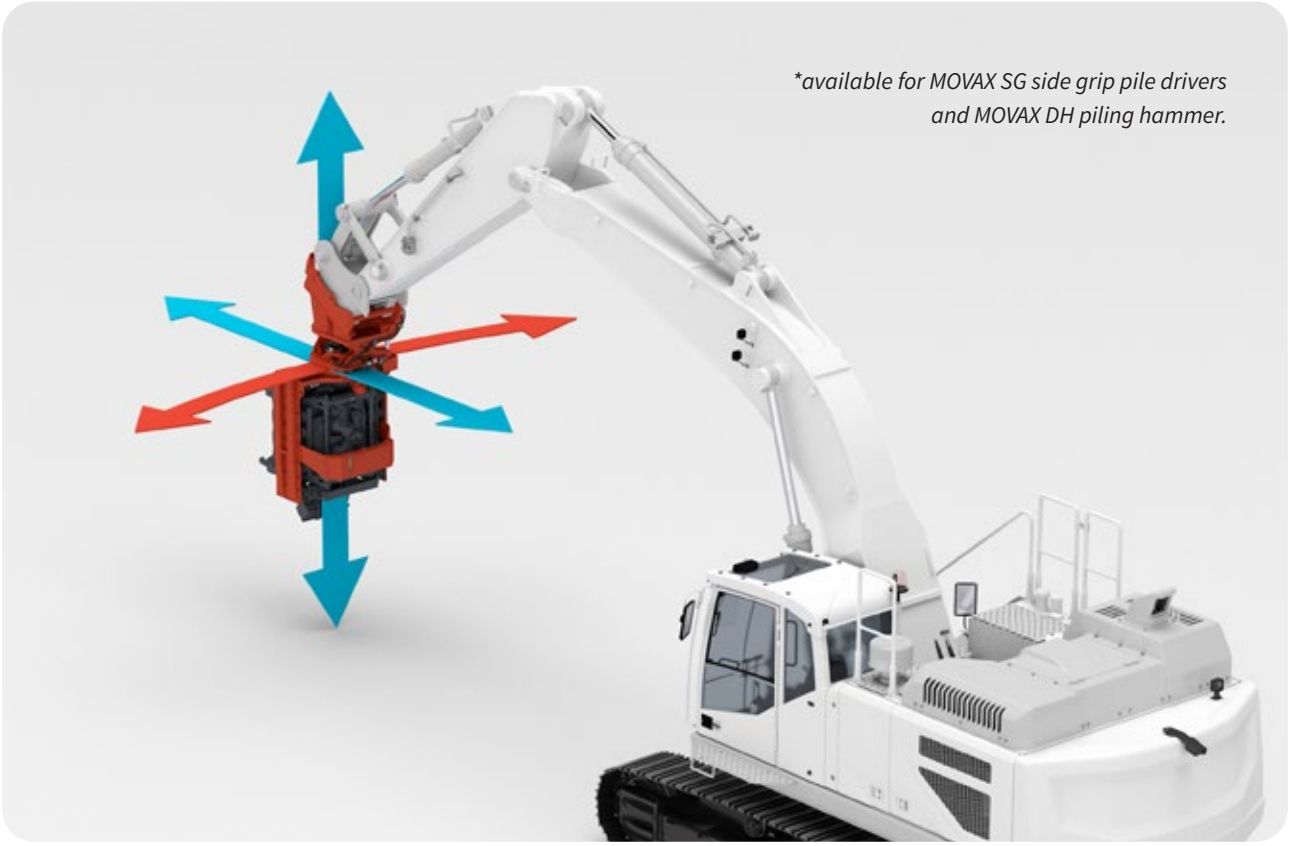
mControl+ PRO is equipped with the advanced, automatic tip-control feature that makes for higher production rates and increased quality of installation by assisting the operator in achieving a faster and more precise piling process.

The automatic tip-control feature utilizes the power of computing and pre-programming combined with live sensory data enabling the operator to perform multiple simultaneous movements by single action.



This ensures that the mounted MOVAX piling equipment travels vertically in a straight line by taking over the demanding parts of the excavator's boom control.

The angle sensors are mounted on the carrier's boom and stick, the MOVAX piling equipment* and the proportional pilot control of the excavator's auxiliary hydraulics.



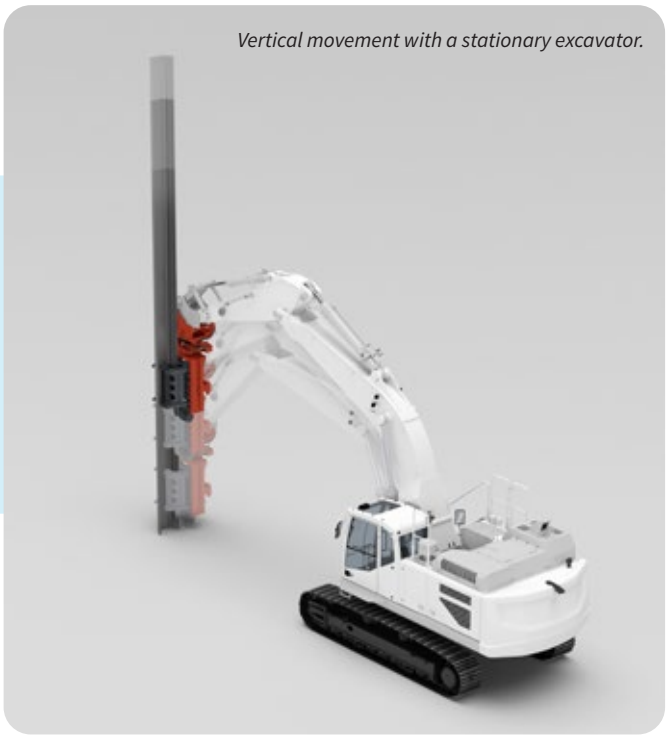
**available for MOVAX SG side grip pile drivers and MOVAX DH piling hammer.*

mControl+ PRO

AUTOMATIC CONTROL

The operator can pilot the boom assembly of the excavator in both directions, up and down (Y-axis) and forwards and backwards (X-axis), with single control grip roller commands – with a horizontally constant distance position, and the with the MOVAX side grip pile driver or MOVAX piling hammer parallel to the pile at all times. The speed of the action can be adjusted fly-by with the proportional roller when the movement occurs. Highly accurate calibrations can be done in the mControl+Pro application, based on operator preference.

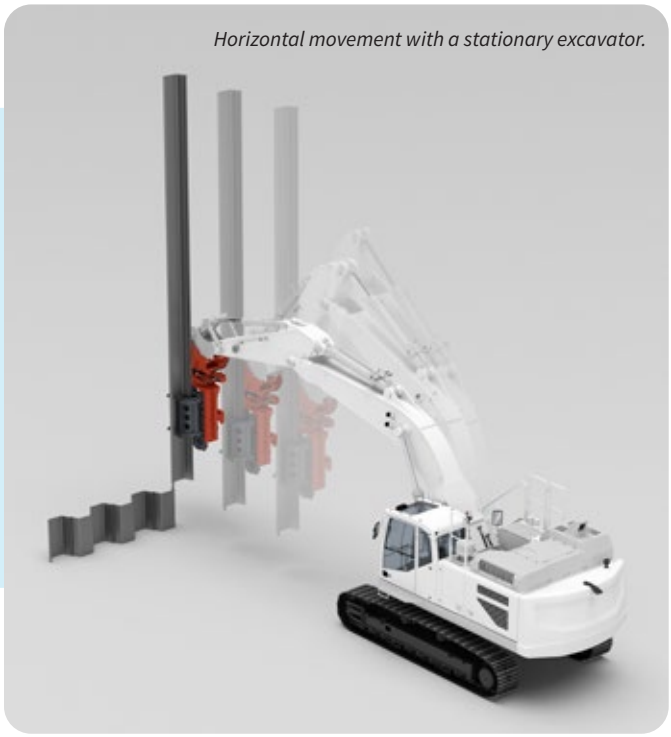
The **Y-axis** of the tip control-feature is utilized upon driving or extracting piles with a MOVAX side grip pile driver, or when adjusting the gripping position in order to drive the pile further into the soil.



Vertical movement with a stationary excavator.

The **X-axis** of the tip control-feature comes into play when steady and accurate horizontal movement is required.

A particularly good example is the pitching of sheet piles: guiding the pile into the lock insert is faster when motion only happens on the X-axis, while maintaining a static position on the Y-axis.



Horizontal movement with a stationary excavator.

mControl+ PRO

INFORMATION

mControl+ PRO provides comprehensive and essential information about the operation of the MOVAX piling equipment and the piling process itself, allowing the operator to monitor and optimize the operation for the best possible overall performance.

The mControl+ PRO provides the following key information (MOVAX SG side grip pile driver):

- **Angle**. Providing information about the verticality.
- **Frequency**. Helping the operator keep the performance on the optimum level.
- **Oil pressures** with warnings, to ensure the correct operation of the machine.
- **Clamp pressure**, providing extra safety to handling and driving process.
- **Gear oil temperature** with warnings, to monitor bearing temperatures and maintain the bearing lifetime.
- **Eccentric position**, provides information of the current eccentric moment on VA-models.
- **Position**, horizontal and vertical distances from the zero point, to increase the operators ability to perform.
- **Target angle**, for non-vertical driving
- **Refusal**. Displays a clear and visible warning when the refusal is reached during the pile driving process and ultimately stops the operation, thus protecting the MOVAX piling equipment.
- **Pile ID-number**, when using mLogbook.

The information displayed is dependent on the MOVAX piling equipment in question.


MOVAX
VERSO 12

INTRODUCTION

mControl+ LITE

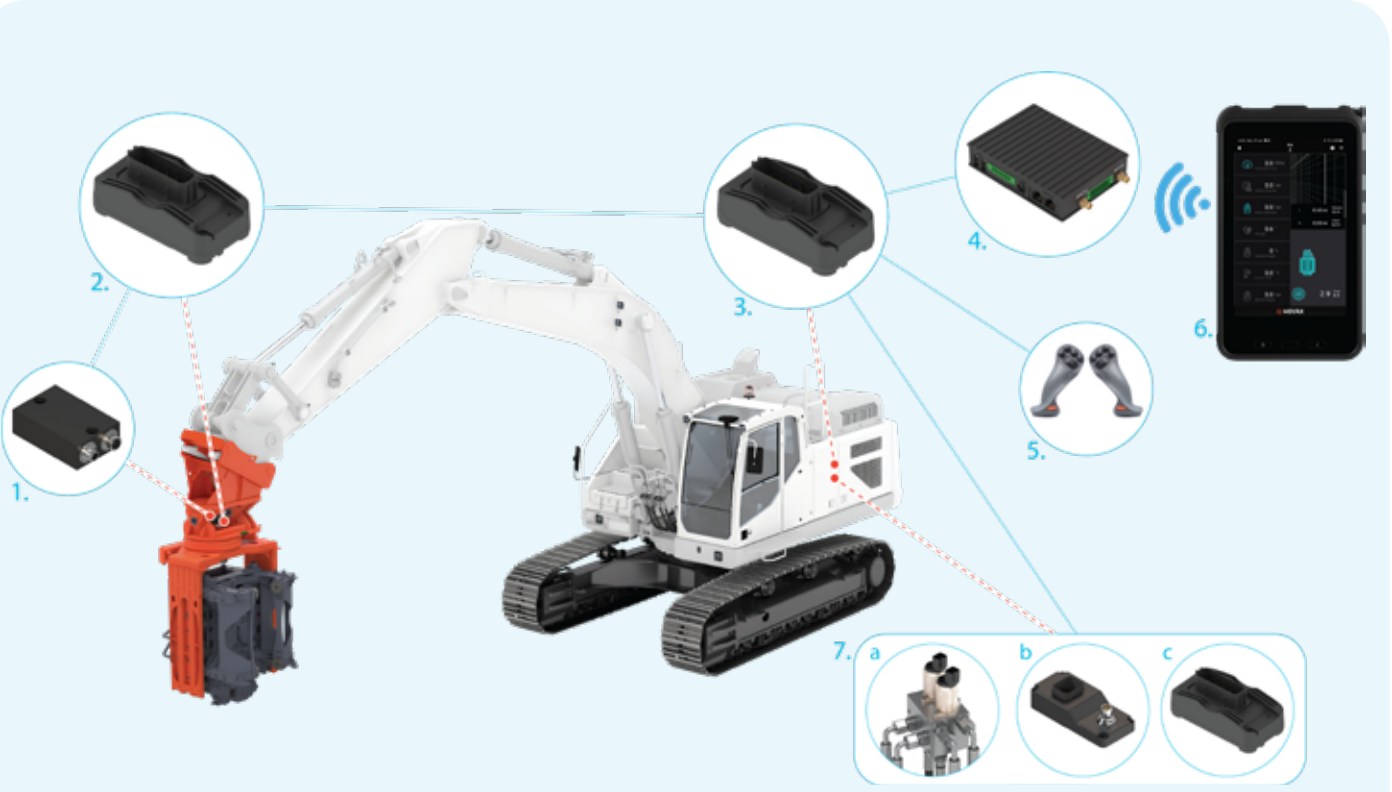
mControl+ LITE is a state-of-the-art control system that utilizes either proportional pilot valves, a PWM controller, or a CAN pilot circuit/interface to control the excavator's auxiliary hydraulics.

mControl+ LITE is installed onto the excavator without making any changes to the original functionality of the excavator whatsoever.

mControl+ LITE is utilized to control all MOVAX piling equipment, including SG side grip pile drivers, DH piling hammers, TAD/KB piling drills and MPM manipulators.

The LITE version of the system provides basic information about the operation, thus assisting the operator in the piling process.

mControl+ LITE



1. MOVAX Angle sensor (MxS)
2. MOVAX Module (MxM)
3. Excavator module (ExM)

4. MIMS Module
5. Control grips
6. mControl+ Display

7. Pilot circuit control
a) Hydraulic valve block
b) PWM Control, **c)** CAN Interface

mControl+ LITE

FEATURES

Basic Control System

- Controls all the main functions of the MOVAX piling equipment.

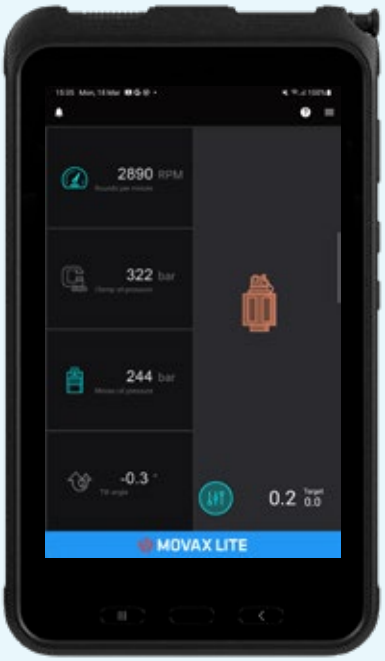
  mControl+ LITE can be upgraded to mControl+ PRO with separate upgrade kit.

Informative Control & Monitoring System

- Basic information about the pile driving process and for monitoring of equipment operation and performance.

Display

- Android tablet, 8”
- Color display
- Ergonomic user interface for set-up/input data, monitoring and operation



Control grips

- Ergonomic control grips with 2- or 3-rollers and buttons which allow complete operation with a single grip.
- Extra buttons and rollers are provided for accommodating functions from the excavator’s original handles, as necessary.

Control modules

- Excavator cab-mounted EXM controls the excavator’s auxiliary hydraulics with either proportional valves, a PWM controller or a CAN bus control circuit.
- Factory installed MXM delivered with the MOVAX equipment, controls the hydraulic valves on the MOVAX piling equipment.

INFORMATION MANAGEMENT

MOVAX Information Management Systems (MIMS) provide essential information about the pile driving process – in order to improve the quality of the piling works and to save both time and costs in reporting - and about the MOVAX piling equipment itself – with the aim to maximize the availability.

Data collection, -transfer and -storage

The MIMS hardware (HW), which is a part of the mControl+ MOVAX Control System and installed onto the excavator is utilised for automatic data collection and data transfer. The HW includes a fully integrated 4G/GPS-system providing the remote connection, and global positioning data. The information is sent to and stored in the MOVAX mCLOUD data storage. The information stored in the mCLOUD data storage is accessed through a web-based user interface. The information can also be accessed through the mFleetCare app.

MOVAX Information Management System is compatible with third-party global positioning systems such as Novatron/MOBA, Trimble and Leica. When connected to a third party global positioning system it is possible to obtain also the exact location of the pile to be driven.

Data suites

mFleet Management

provides essential information about the operation, performance and condition of the MOVAX piling equipment. mFleetManagement is designed to assist in troubleshooting, diagnostics and analysis - and for fast and efficient customer technical support.

mLogbook

is a documentation and reporting tool which provides essential data related to the piling process and the piling or foundation project.


12.47
Serial number
Make
Model
Year of Manufacture
Last connection
1412
Side Grip Pile Driver
SG-60V
2018
19. FEB 2024 16:06
RESET

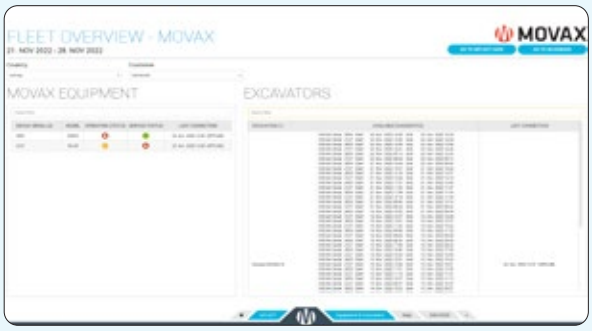
mFleetManagement

FEATURES

The mFleetManagement-data suite provides basic operational, real-time information about the MOVAX piling equipment as well as the general global positioning (GPS) data of the MOVAX piling equipment and the excavator it is connected to. The information can be accessed remotely for adjustment and calibration – and for instance to provide operational guidance and support – as well as for trouble-shooting and quick problem-solving.

mFleetManagement also provides information for the prediction of maintenance requirements thus enabling preventive maintenance with the intent to maximize the availability of the MOVAX piling equipment.

The information can furthermore be utilised for instance for invoicing purposes, etc.



The **'Fleet Overview'** presents an overview of all the MOVAX piling equipment including all the excavators the MOVAX piling equipment is connected to. The 'Fleet overview' also provides a quick overview of the operating and service status of the entire fleet.

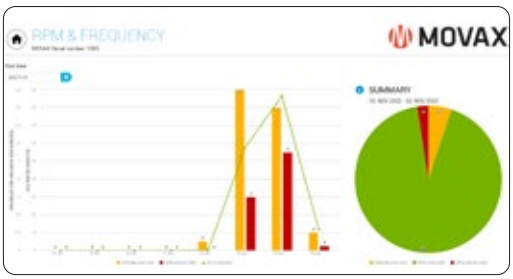
The MOVAX piling equipment to be monitored or analysed in more detail is selected from the 'Fleet Overview'.

The main '**Unit Overview'** provides the general information about the specific MOVAX piling equipment in question, its general geographical location, overall utilization hours, operating and service status.

More detailed information is obtained by moving from the 'unit overview' to the ready-prepared reports.

Reports

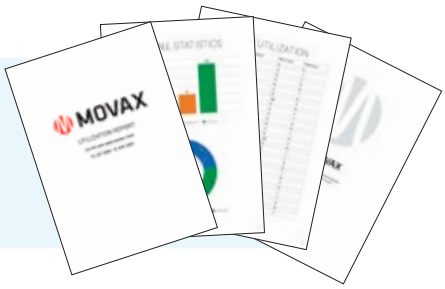
The operational information is presented in an illustrative, easy-to-view and -browse format. The point-in-time or time interval to be reviewed or analysed can be selected flexibly. The information presented is providing a fast and flexibly overview of the operation, how the unit has been operated – especially in regards to the limits of some of the key operational parameters.



SG rpm/frequency

SG utilization

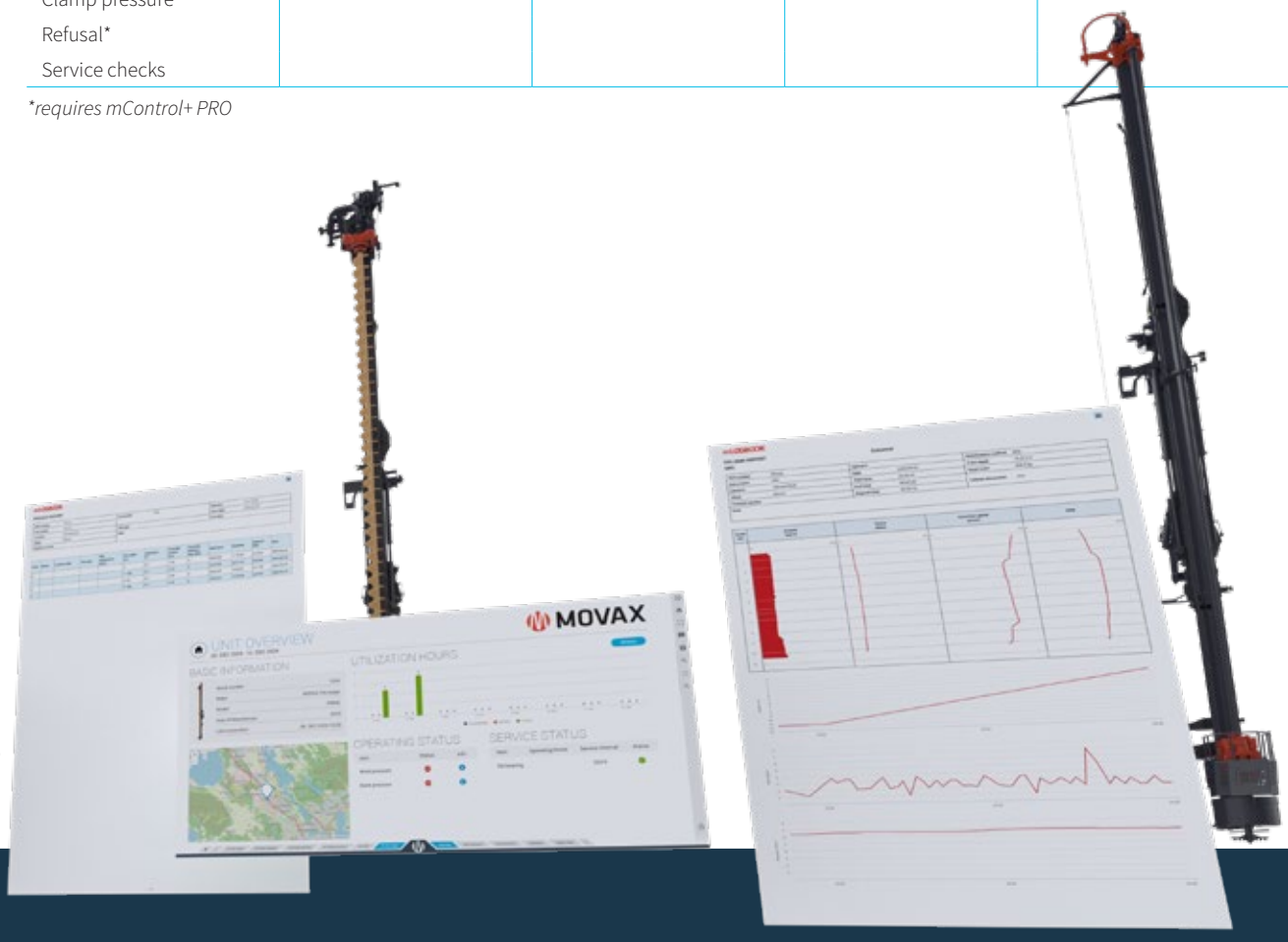
Based on for instance the **'Utilization hours'** a PDF-document for invoicing can be generated.



The ready-made reports include the following:

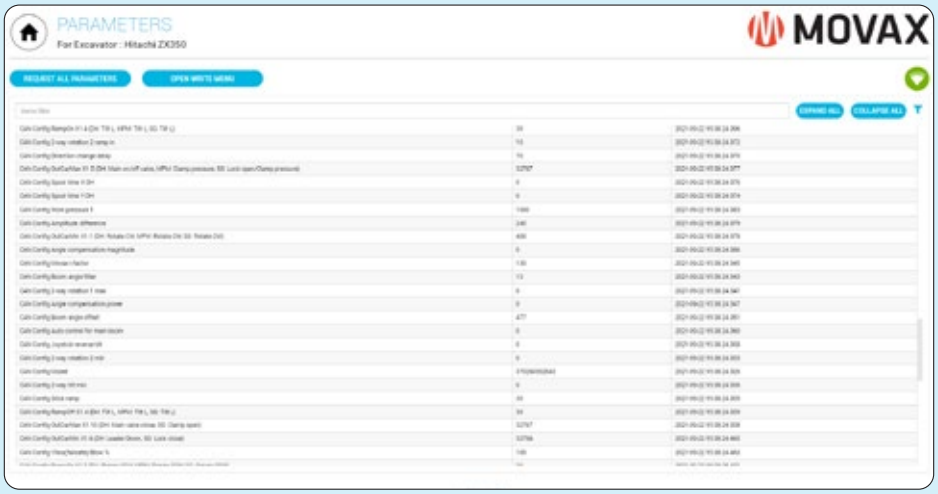
MOVAX SG Side grip pile drivers	**MOVAX DH** Piling hammers	**MOVAX PA** Pre-augers	**MOVAX KB/TAD** Piling drills	**MOVAX MPL** Multi-tool piling leaders
Utilization hours	Utilization hours	Utilization hours	Utilization hours	Utilization hours
RPM/Frequency	Back pressure	Working pressure	Working pressure	Working pressure
Working pressure	Refusal*	Back pressure	Back pressure	Back pressure
Back pressure	Service checks	Drain pressure	Drain pressure	Service checks
Drain pressure		Service checks	Service checks	
Clamp pressure				
Refusal*				
Service checks				

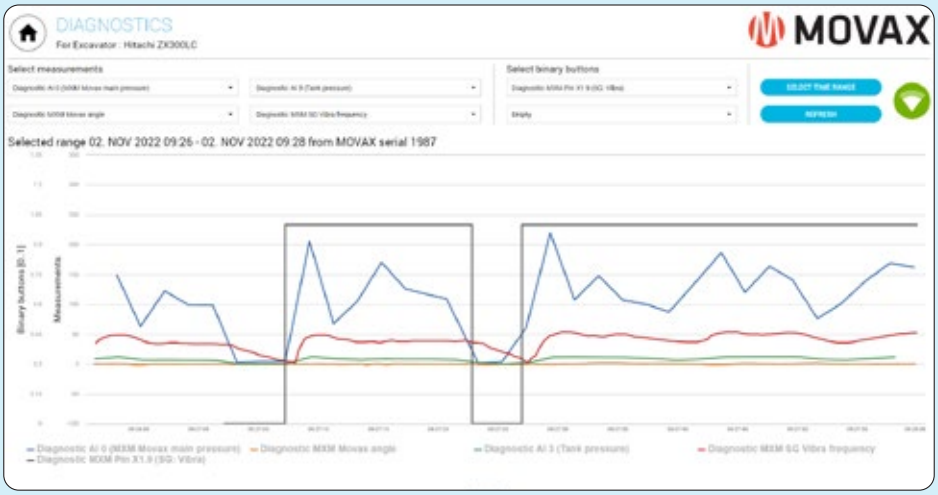
**requires mControl+ PRO*

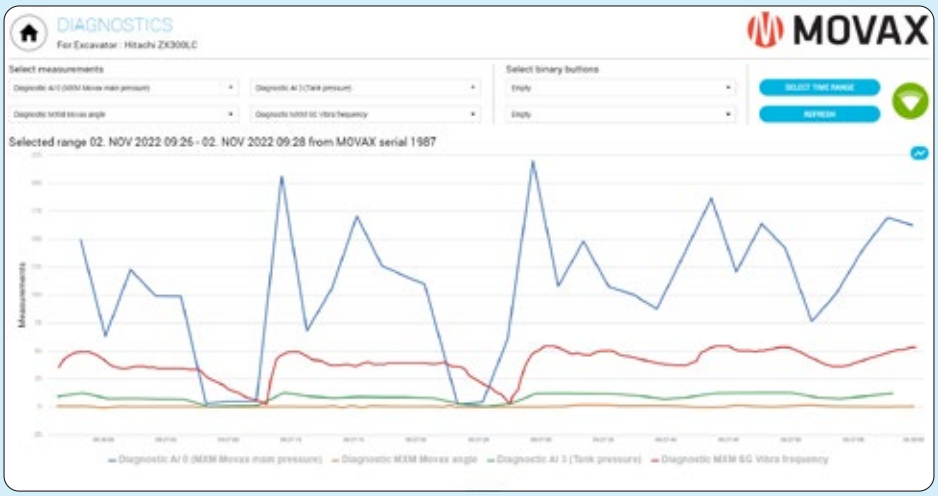


Tools for analysis

With the mFleetManagement it is possible to prevent failures, predict maintenance requirements and analyse and solve any unexpected problems. mFleetManagement includes versatile tools which enables analysis of the entire work cycle and makes it possible to find deviations and abnormalities. The amount of data varies based on the MOVAX piling equipment in question.








MOVAX
Service status
No service needed
No service needed
No service needed
No service needed
No service needed
No service needed
No service needed
No service needed
No service needed
Service needed
Service needed
DRAIN PRESSURE
MOVAX
SUMMARY

mLOGBOOK

FEATURES

mLogbook is a documentation and reporting tool which provides essential data related to the piling process and the piling or foundation project.

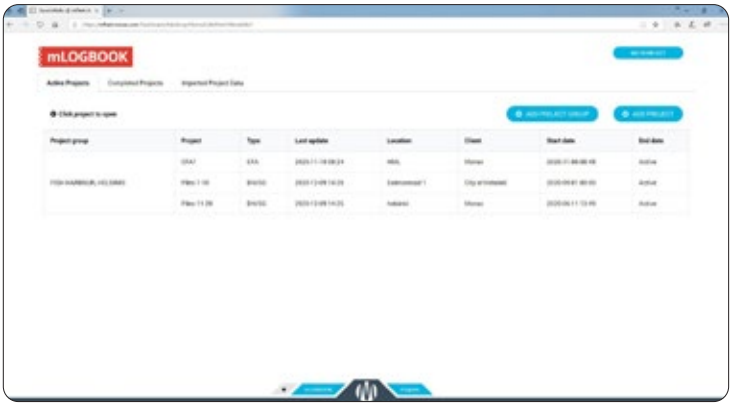
The piling information is collected by the MOVAX Control System and stored in the MOVAX Control System's excavator module. To report the piling works the operator only has to input the pile number, the system will take care of the rest. Data concerning site and pile information is added by the user (engineer or equal) and the system will generate automatically illustrative, ready-made reports - including both measured and calculated data - which provide essential information about the piling process and its quality.

mLogbook is compatible with commonly used global positioning systems such as Trimble, Novatron and Leica which adds also the positioning data to the pile reports. Optionally independent global positioning sensors (RTK GNSS) can also be provided to allow for the addition of the exact pile positioning data without a third party global positioning system.

Project overview

Specific reports are generated for MOVAX piling equipment including MOVAX side grip pile drivers, MOVAX piling hammers, MOVAX piling drills and MOVAX multi-tool piling leaders including the associated tooling,

The 'Project overview' provides the information of all main projects and also sub-projects.



SG project report

The mLogbook **'project report'** includes all the information related to the piling or foundation project including pile type & dimensions, the depth to which the pile has been driven with the various tools and for instance in the case of load bearing piles also information related to the pile set.

Different parameters are reported for the different MOVAX piling equipment.

mLOGBOOK

PROJECT REPORT
SG

Main project	Bridge construction	**MOVAX piling equipment**	SG-60, sn1462	**Operator**	Tom Jackson
Sub project	SE Exit			**Start date**	2020-05-12
Location	Islington, London	**Pile type**	Sheet piles	**End date**	2020-05-31
Customer	Road constuctors ltd	**Note!**			
Contract number	923000-A1				

Pile#	Position data	Pile type	Pile dimensions [mm]	Pile length [m]	Total depth [m]	Depth [m]	Angle (avg) [°]	Date
1	53°26'54.036"N 2°12'47.012"W	AZ 13-770	770	12	7.877	6.143	0,0	2020-05-13 13:25
2	53°26'54.037"N 2°12'47.012"W	AZ 13-770	770	12	9.274	8.189	-0,1	2020-05-13 13:58
3	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	0,4	2020-05-13 14:38
4	53°26'54.039"N 2°12'47.012"W	AZ 13-770	770	12	7.062	6.157	0,2	2020-05-13 14:58
5	53°26'54.040"N 2°12'47.012"W	AZ 13-770	770	12	6.907	4.763	0,0	2020-05-13 15:05
6	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	5.921	0,0	2020-05-13 15:19
7	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	-0,3	2020-05-13 14:38
8	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	5.921	0,0	2020-05-13 15:19
9	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	0,1	2020-05-13 14:38
10	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	5.921	-0,1	2020-05-13 15:19
11	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	0,2	2020-05-13 14:38
12	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	5.921	0,0	2020-05-13 15:19
13	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	0,1	2020-05-13 14:38
14	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	5.921	-0,1	2020-05-13 15:19
15	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	0,2	2020-05-13 14:38
16	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	5.921	0,2	2020-05-13 15:19
17	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	0,3	2020-05-13 14:38
18	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	5.921	0,1	2020-05-13 15:19
19	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	0,1	2020-05-13 14:38
20	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	5.921	0,3	2020-05-13 15:19
21	53°26'54.038"N	AZ 13-770	770	12	11.926	10.121	0,0	2020-05-13 14:38

MOVAX SG side grip pile driver -report:
Penetration rate, Centrifugal force, Working pressure, Eccentric moment, RPM, Inclination

DH project report

The mLogbook **'project report'** includes all the information related to the piling or foundation project including pile type & dimensions, the depth to which the pile has been driven with the various tools and for instance in the case of load bearing piles also information related to the pile set.

Different parameters are reported for the different MOVAX piling equipment.

mLOGBOOK

PROJECT REPORT
DH

Main project	Bridge construction	**MOVAX piling equipment**	DH-25, sn1574	**Operator**	Tom Jackson
Sub project	SE Exit			**Start date**	2020-05-12
Location	Islington, London	**Pile type**	Sheet piles	**End date**	2020-05-31
Customer	Road constuctors ltd	**Note!**			
Contract number	923000-A1				

Pile#	Position data	Pile type	Pile dimensi-ons [mm]	Pile length [m]	Total depth [m]	Depth DH [m]	Blows DH [no]	Angle (avg) [°]	Pile set criterion			Date
									Energy [kNm]	Blows	Set [mm]	
1	53°26'54.036"N 2°12'47.012"W	AZ 13-770	770	12	7.877	1.734	56	0,0	21,9/20	10/10	19,1/20	2020-05-13 13:25
2	53°26'54.037"N 2°12'47.012"W	AZ 13-770	770	12	9.274	1.085	90	-0,1	20,8/20	10/10	13,6/20	2020-05-13 13:58
3	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	0,4	20,0/20	10/10	20,2/20	2020-05-13 14:38
4	53°26'54.039"N 2°12'47.012"W	AZ 13-770	770	12	7.062	0.905	64	0,2	21,3/20	10/10	14,8/20	2020-05-13 14:58
5	53°26'54.040"N 2°12'47.012"W	AZ 13-770	770	12	6.907	2.144	86	0,0	21,5/20	8/10	17,7/20	2020-05-13 15:05
6	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	0,0	20,1/20	10/10	17,6/20	2020-05-13 15:19
7	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	-0,3	22,0/20	10/10	18,9/20	2020-05-13 14:38
8	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	0,0	22,2/20	9/10	16,3/20	2020-05-13 15:19
9	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	0,1	21,1/20	10/10	14,6/20	2020-05-13 14:38
10	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	-0,1	22,3/20	10/10	18,6/20	2020-05-13 15:19
11	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	0,2	22,2/20	10/10	17,1/20	2020-05-13 14:38
12	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	0,0	21,8/20	10/10	17,7/20	2020-05-13 15:19
13	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	0,1	21,2/20	10/10	15,3/20	2020-05-13 14:38
14	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	-0,1	20,1/20	6/10	17,4/20	2020-05-13 15:19
15	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	0,2	21,1/20	10/10	14,6/20	2020-05-13 14:38
16	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	0,2	22,0/20	10/10	15,4/20	2020-05-13 15:19
17	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	0,3	21,9/20	10/10	21,0/20	2020-05-13 14:38
18	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	0,1	19,7/20	10/10	13,1/20	2020-05-13 15:19
19	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	0,1	21,6/20	10/10	13,2/20	2020-05-13 14:38
20	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	0,3	21,7/20	10/10	20,1/20	2020-05-13 15:19
21	53°26'54.038"N	AZ 13-770	770	12	11.926	1.805	125	0,0	22,4/20	5/10	14,8/20	2020-05-13 14:38

MOVAX DH side grip pile driver -report:
Penetration rate, Rate per blow, Drop height, Energy, Inclination

CFA project report

The mLogbook **'project report'** includes all the information related to the piling or foundation project including pile type & dimensions, the depth to which the pile has been driven with the various tools and for instance in the case of load bearing piles also information related to the pile set.

Different parameters are reported for the different MOVAX piling equipment.

mLOGBOOK

PROJECT REPORT

Main project	Bridge construction	**MOVAX piling equipment**	MPL-400/CFA, sn 1255	**Operator**	Tom Jackson
Sub project	SE Exit			**Start date**	2020-05-12
Location	Islington, London	**Pile type**	CFA	**End date**	2020-05-31
Customer	Road constuctors ltd	**Note!**			
Contract number	923000-A1				

Pile#	Position data	Pile type	Pile dimensions [mm]	Pile depth [m]	Angle [°]	Torque (average) [kNm]	Concrete volume [m³]	Concrete pressure (average) [bar]	Start time	End time	Elapsed time	Date
1	53°26'54.036"N 2°12'47.012"W	CFA	400	10	0,1	41,1	5,39	68	12:04:40	12:45:34	0:40:54	2020-05-12
2	53°26'54.037"N 2°12'47.012"W	CFA	400	10	-0,3	36,2	5,55	37	8:42:24	8:55:55	0:13:31	2020-05-13
3	53°26'54.038"N 2°12'47.012"W	CFA	400	10	-0,4	36,4	5,33	21	9:44:22	9:59:20	0:14:58	2020-05-13
4	53°26'54.039"N 2°12'47.012"W	CFA	400	10	0,1	35,5	5,72	48	10:55:33	11:34:22	0:38:49	2020-05-13
5	53°26'54.040"N 2°12'47.012"W	CFA	400	10	-0,1	38,9	5,11	24	12:04:40	12:45:34	0:40:54	2020-05-13
6	53°26'54.041"N 2°12'47.012"W	CFA	400	10	0,2	39,7	5,64	28	13:07:22	13:30:22	0:23:00	2020-05-13
7	53°26'54.038"N 2°12'47.012"W	CFA	400	10	0,4	36,8	5,21	79	13:45:55	13:59:22	0:13:27	2020-05-13
8	53°26'54.041"N 2°12'47.012"W	CFA	400	10	-0,2	36,3	5,03	27	14:15:00	14:26:22	0:11:22	2020-05-13
9	53°26'54.038"N 2°12'47.012"W	CFA	400	10	0,0	39,9	5,20	73	14:47:44	15:13:20	0:25:36	2020-05-13
10	53°26'54.041"N 2°12'47.012"W	CFA	400	10	0,0	37,6	5,79	64	14:15:00	14:26:22	0:11:22	2020-05-14
11	53°26'54.038"N 2°12'47.012"W	CFA	400	10	-0,3	36,5	5,87	33	13:07:22	13:30:22	0:23:00	2020-05-15
12	53°26'54.041"N 2°12'47.012"W	CFA	400	10	0,1	37,4	5,73	60	12:04:40	12:45:34	0:40:54	2020-05-16
13	53°26'54.038"N 2°12'47.012"W	CFA	400	10	-0,3	39,3	5,24	59	8:42:24	8:55:55	0:13:31	2020-05-17
14	53°26'54.041"N 2°12'47.012"W	CFA	400	10	-0,1	41,0	5,91	76	9:44:22	9:59:20	0:14:58	2020-05-18
15	53°26'54.038"N 2°12'47.012"W	CFA	400	10	-0,3	41,6	5,44	58	10:55:33	11:34:22	0:38:49	2020-05-18
16	53°26'54.041"N 2°12'47.012"W	CFA	400	10	-0,1	40,1	5,44	78	12:04:40	12:45:34	0:40:54	2020-05-25
17	53°26'54.038"N 2°12'47.012"W	CFA	400	10	-0,1	38,2	5,67	75	8:42:24	8:55:55	0:13:31	2020-05-26
18	53°26'54.041"N 2°12'47.012"W	CFA	400	10	0,1	37,4	5,41	30	9:44:22	9:59:20	0:14:58	2020-05-26
19	53°26'54.038"N 2°12'47.012"W	CFA	400	10	-0,1	37,6	5,07	35	10:55:33	11:34:22	0:38:49	2020-05-26

MOVAX Multi-tool piling leader CFA -report:

Position data, Pile type, Pile dimensions, Pile depth, Angle, Torque, Concrete volume, Concrete pressure, Start time, End time, Elapsed time, Date

MSL project report

The mLogbook **‘project report’** includes all the information related to the piling or foundation project including pile type & dimensions, the depth to which the pile has been driven with the various tools and for instance in the case of load bearing piles also information related to the pile set.

Different parameters are reported for the different MOVAX piling equipment.

mLOGBOOK

PROJECT REPORT
Column stabilisation

Main project	Bridge construction	**Stabilization method**	column stabilization	**Operator**	Tom Jackson
Sub project	SE Exit	**Binder material**	Cement	**Start date**	2020-05-12
Location	Islington, London	**Jobsite data (measured)**		**End date**	2020-05-31
Customer	Road constuctors ltd	**Total mass** **Total volume**	2328 kg 32 m³	**Note!**	
Contract number	923000-A1				

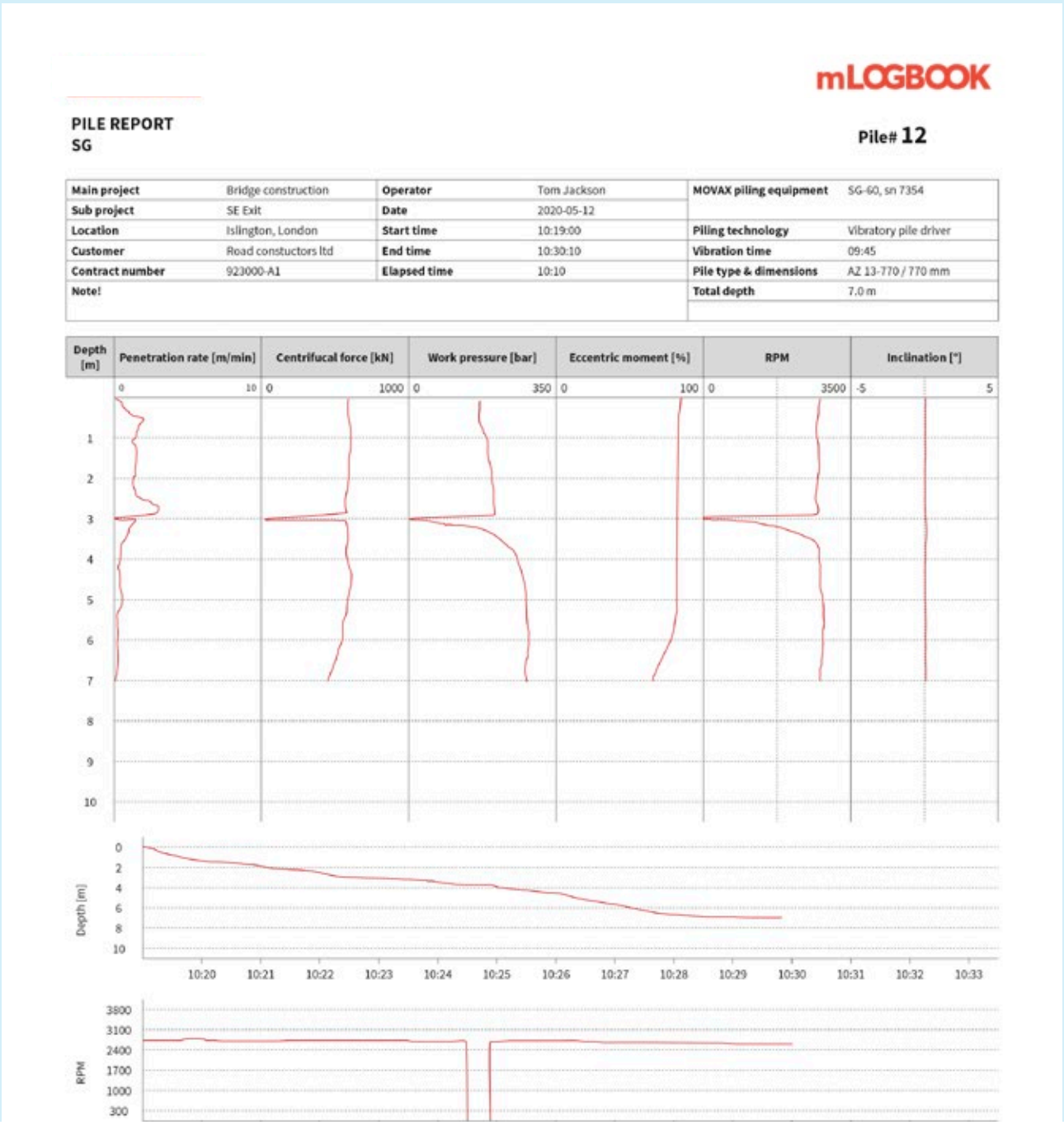
Column #	Column ID	Position data	PF ID	Section dimensions [mm]	Total depth [m]	Binder [kg/m³]	Total amount [kg]	Total volume [m³]	Pressure [bar]	Flow [kg/s]	Feeding time [hh:min:ss]	Mixing time [hh:min:ss]	Date
1	1,1	53°26’54.036”N 2°12’47.012”W	K7R234	800	15	88	530	5,39	0,2	2,9	0:07:45	0:08:34	2020-05-12
2	1,2	53°26’54.037”N 2°12’47.012”W	K7R234	800	15	89	510	5,55	0,3	2,7	0:06:45	0:07:34	2020-05-13
3	1,3	53°26’54.038”N 2°12’47.012”W	K7R234	800	15	87	540	5,33	0,2	3,1	0:08:34	0:07:45	2020-05-13
4	1,4	53°26’54.039”N 2°12’47.012”W	K7R234	800	15	85	525	5,72	0,4	3,2	0:07:34	0:06:45	2020-05-13
5	1,5	53°26’54.040”N 2°12’47.012”W	K7R234	800	15	86	530	5,11	0,2	3,1	0:07:45	0:08:34	2020-05-13
6	1,6	53°26’54.041”N 2°12’47.012”W	K7R234	800	15	83	525	5,64	0,2	3,3	0:06:45	0:08:34	2020-05-13
7	1,7	53°26’54.038”N 2°12’47.012”W	K7R234	800	15	84	530	5,21	0,2	2,6	0:08:34	0:07:34	2020-05-13
8	2,1	53°26’54.041”N 2°12’47.012”W	K7R234	800	15	89	510	5,03	0,3	2,9	0:07:34	0:07:45	2020-05-13
9	2,2	53°26’54.038”N 2°12’47.012”W	K7R234	800	15	88	540	5,20	0,2	2,9	0:07:45	0:06:45	2020-05-13
10	2,3	53°26’54.041”N 2°12’47.012”W	K7R234	800	15	89	525	5,79	0,4	2,7	0:06:45	0:08:34	2020-05-14
11	2,4	53°26’54.038”N 2°12’47.012”W	K7R234	800	15	87	530	5,87	0,2	3,1	0:08:34	0:08:34	2020-05-15
12	2,5	53°26’54.041”N 2°12’47.012”W	K7R234	800	15	85	525	5,73	0,2	3,2	0:07:34	0:07:34	2020-05-16
13	2,6	53°26’54.038”N 2°12’47.012”W	K7R234	800	15	86	530	5,24	0,2	3,1	0:07:45	0:07:45	2020-05-17
14	2,7	53°26’54.041”N 2°12’47.012”W	K7R234	800	15	83	510	5,91	0,3	3,3	0:06:45	0:06:45	2020-05-18
15	3,1	53°26’54.038”N 2°12’47.012”W	K7R234	800	15	84	540	5,44	0,2	2,6	0:08:34	0:08:34	2020-05-18
16	3,2	53°26’54.041”N 2°12’47.012”W	K7R234	800	15	89	525	5,44	0,4	2,9	0:07:34	0:08:34	2020-05-25
17	3,3	53°26’54.038”N 2°12’47.012”W	K7R234	800	15	88	530	5,67	0,2	2,9	0:07:45	0:07:34	2020-05-26
18	3,4	53°26’54.041”N 2°12’47.012”W	K7R234	800	15	89	525	5,41	0,2	2,7	0:06:45	0:07:45	2020-05-26
19	3,5	53°26’54.038”N 2°12’47.012”W	K7R234	800	15	88	530	5,07	0,2	3,1	0:08:34	0:06:45	2020-05-26
20	3,6	53°26’54.041”N 2°12’47.012”W	K7R234	800	15	89	510	5,86	0,3	3,2	0:07:34	0:08:34	2020-05-26

MOVAX Column stabilisation leader MSL -report:

Position data, Pile type, Pile dimensions, Pile depth, Angle, Torque, Binder amount, Feed pressure
Ascent rate, Start time, End time, Elapsed time, Date

SG pile report

Based on the project report it is possible to generate pile specific reports for each individual pile; and for each individual MOVAX piling equipment.



mLOGBOOK

PILE REPORT
SG

Pile# 12

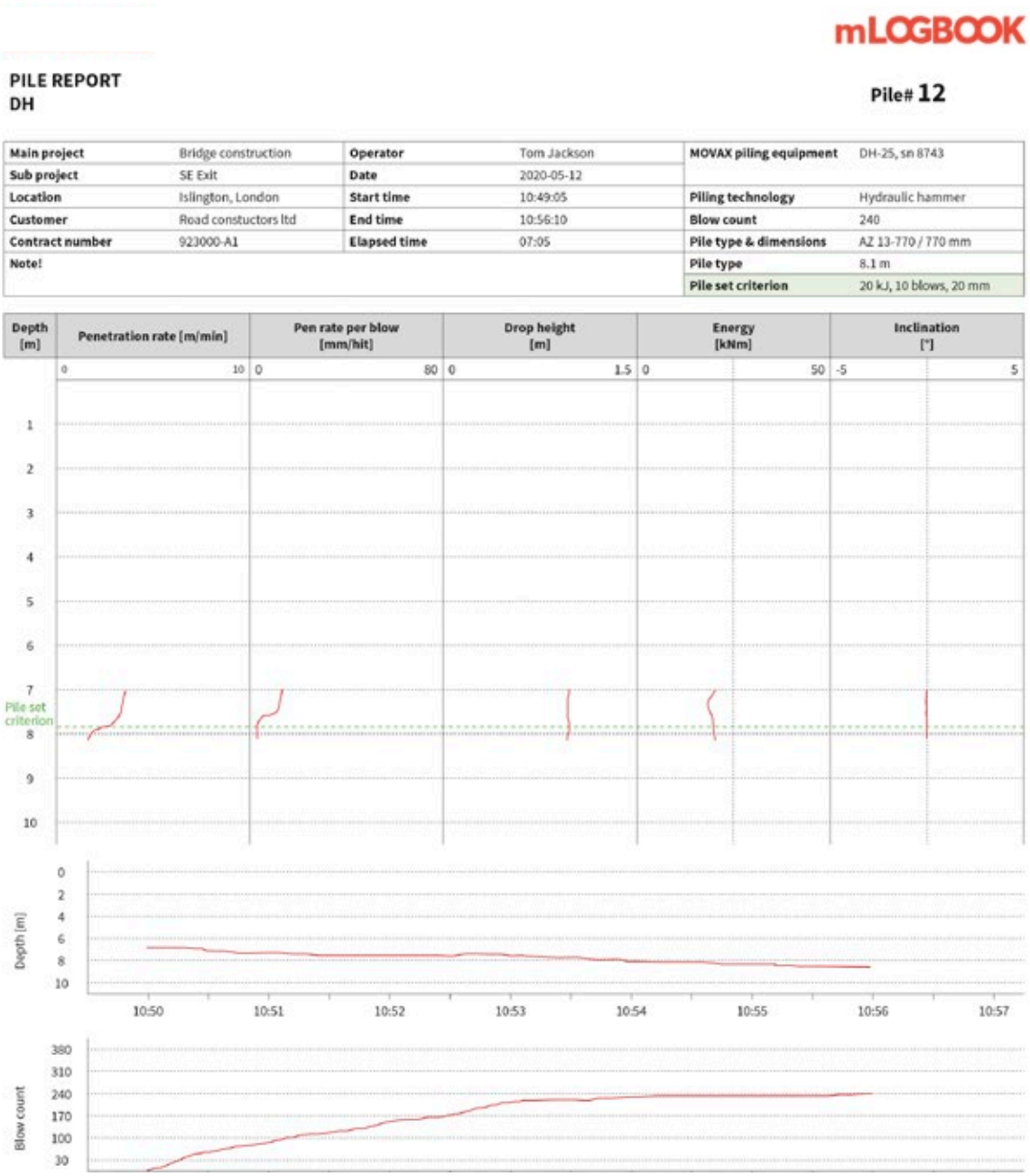
Main project	Bridge construction	**Operator**	Tom Jackson	**MOVAX piling equipment**	SG-60, sn 7354
Sub project	SE Exit	**Date**	2020-05-12		
Location	Islington, London	**Start time**	10:19:00	**Piling technology**	Vibratory pile driver
Customer	Road constuctors ltd	**End time**	10:30:10	**Vibration time**	09:45
Contract number	923000-A1	**Elapsed time**	10:10	**Pile type & dimensions**	AZ 13-770 / 770 mm
Note!				**Total depth**	7.0 m

MOVAX SG side grip pile driver -report:

Penetration rate, Centrifugal force, Working pressure, Eccentric moment, RPM, Inclination

DH pile report

Based on the project report it is possible to generate pile specific reports for each individual pile; and for each individual MOVAX piling equipment.



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PILE REPORT
DH

Pile# 12

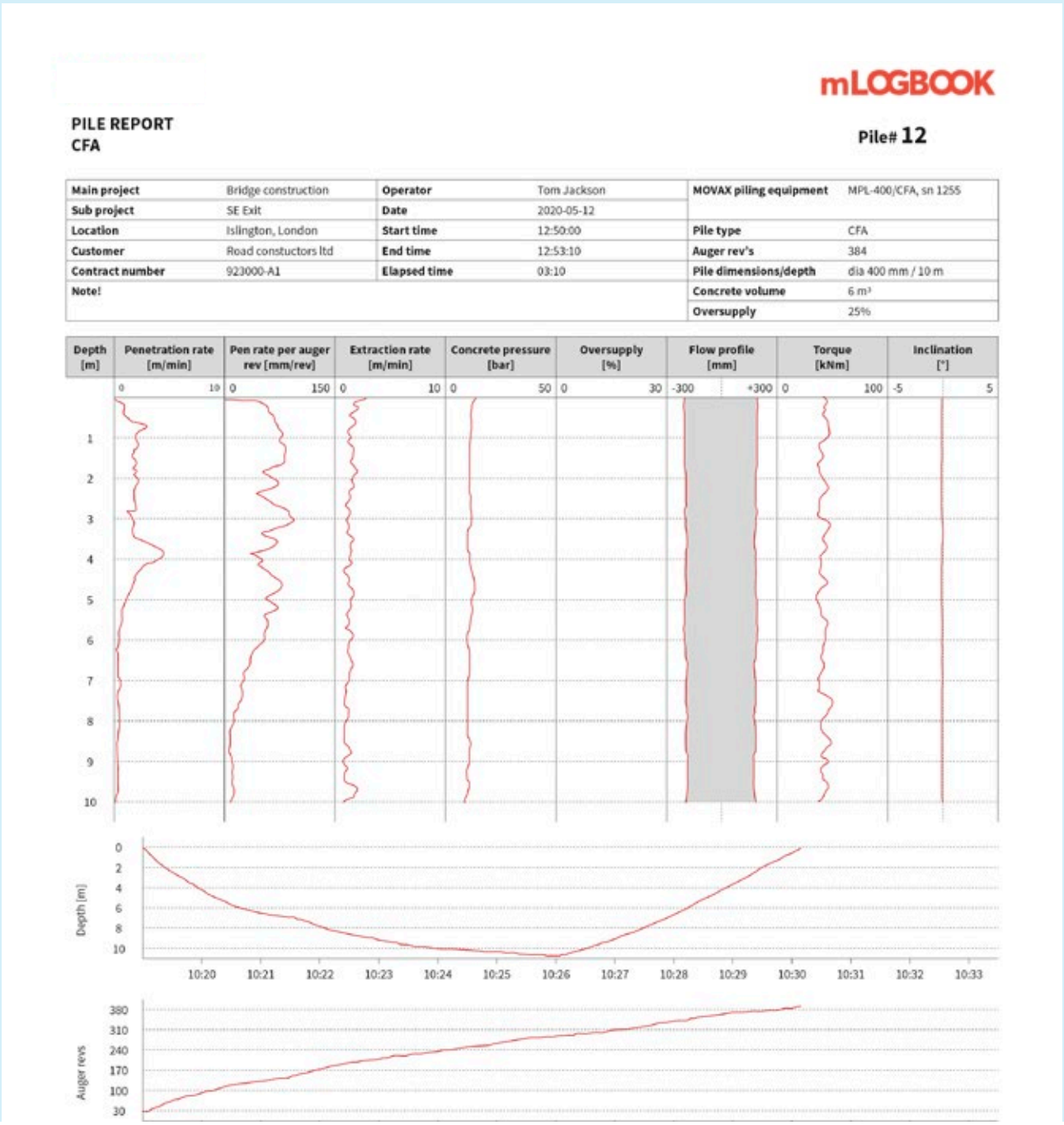
Main project	Bridge construction	**Operator**	Tom Jackson	**MOVAX piling equipment**	DH-25, sn 8743
Sub project	SE Exit	**Date**	2020-05-12		
Location	Islington, London	**Start time**	10:49:05	**Piling technology**	Hydraulic hammer
Customer	Road constuctors ltd	**End time**	10:56:10	**Blow count**	240
Contract number	923000-A1	**Elapsed time**	07:05	**Pile type & dimensions**	AZ 13-770 / 770 mm
Note!				**Pile type**	8.1 m
				Pile set criterion	20 kJ, 10 blows, 20 mm

MOVAX DH side grip pile driver -report:

Penetration rate, Rate per blow, Drop height, Energy, Inclination

CFA pile report

Based on the project report it is possible to generate pile specific reports for each individual pile; and for each individual MOVAX piling equipment.



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PILE REPORT
CFA

Pile# 12

Main project	Bridge construction	**Operator**	Tom Jackson	**MOVAX piling equipment**	MPL-400/CFA, sn 1255
Sub project	SE Exit	**Date**	2020-05-12		
Location	Islington, London	**Start time**	12:50:00	**Pile type**	CFA
Customer	Road constuctors ltd	**End time**	12:53:10	**Auger rev's**	384
Contract number	923000-A1	**Elapsed time**	03:10	**Pile dimensions/depth**	dia 400 mm / 10 m
Note!				**Concrete volume**	6 m³
				Oversupply	25%

MOVAX Multi-tool piling leader CFA -report:

Position data, Pile type, Pile dimensions, Pile depth, Angle, Torque, Concrete volume, Concrete pressure, Start time, End time, Elapsed time, Date

MSL column report

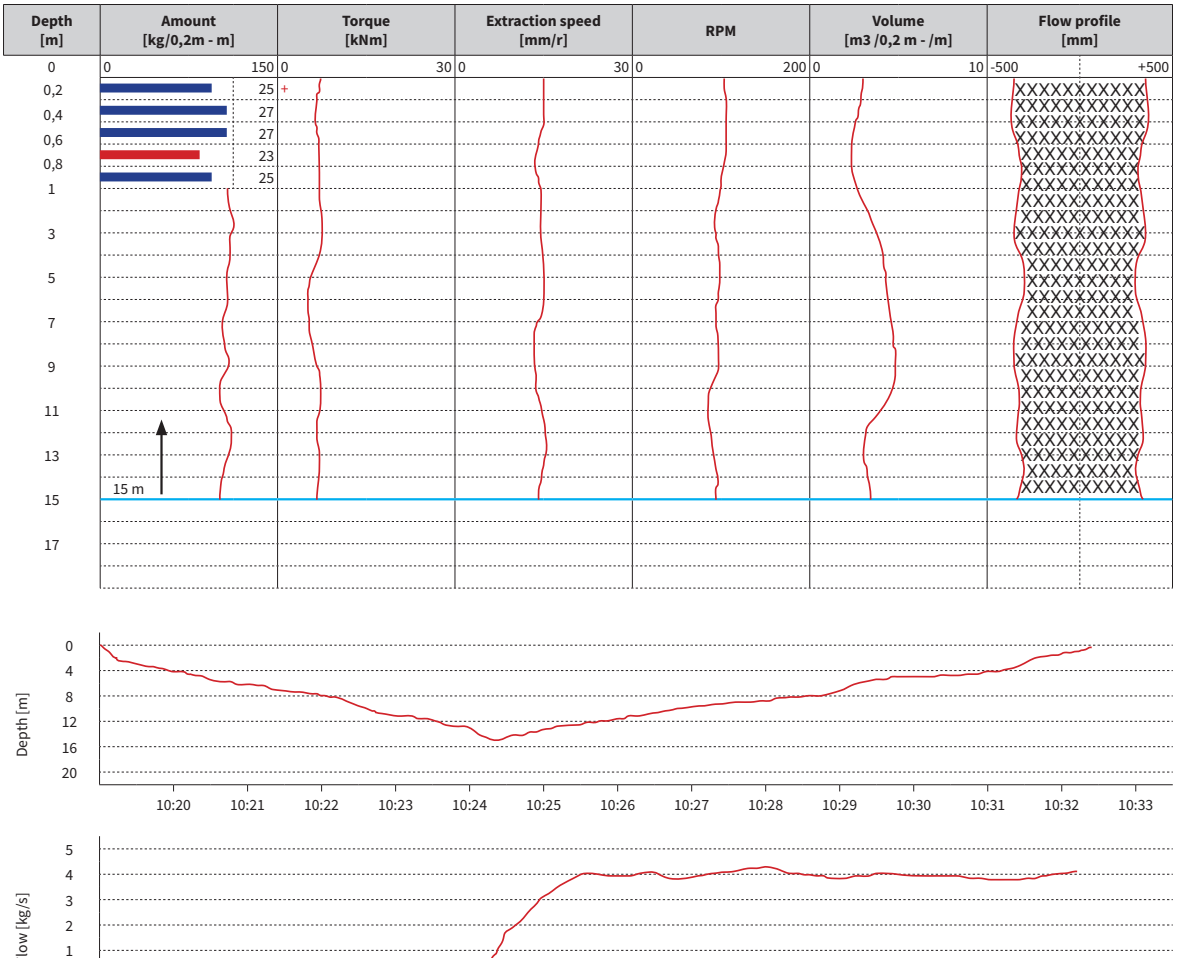
Based on the project report it is possible to generate pile specific reports for each individual pile; and for each individual MOVAX piling equipment.

mLOGBOOK

COLUMN REPORT
Column stabilisation

COLUMN ID 3,4

Main project	Bridge construction	**Operator**	Tom Jackson	**Stabilization method**	column
Sub project	SE Exit	**Date**	2020-05-12	**Total depth**	15 m
Location	Islington, London	**Start time**	12:50:00	**Total mass [kg]**	525
Customer	Road constuctors ltd	**End time**	12:53:10	**Column dimension**	600 mm
Contract number	923000-A1	**Elapsed time**	03:10	**Total volume**	5,34 m³
Note!					



MOVAX Column stabilisation leader MSL -report:

Position data, Pile type, Pile dimensions, Pile depth, Angle, Torque, Binder amount, Feed pressure, Ascent rate, Start time, End time, Elapsed time, Date

INTRODUCTION

ADAPTERS

Pin-connectors

Pin connectors consist of a welded adapter bracket with removable pins (Note! Pins are not included in Movax Oy's delivery, unless separately agreed upon). When connecting the MOVAX piling equipment to the excavator all mechanical, hydraulic and electrical connections are made manually.

Pin-connectors are based on the excavator brand and model. MOVAX Adapters are manufactured to match the specific dimensions of the excavator's bucket connection.

(Mechanical) quick couplers

Quick couplers allow for a faster change of the MOVAX piling equipment or other tooling than for instance traditional pin connectors. When connecting the MOVAX piling equipment to the excavator, the mechanical connection is made by connecting the MOVAX adapter with the excavator's quick coupler. The hydraulic and electrical connections are made manually. MOVAX Adapters are custom-made in accordance with the dimensions of the excavator's quick coupler.

Typical mechanical quick couplers are, for example:

- **S-series** – S60, S70 etc. Note! MOVAX piling equipment and excavator specific MOVAX Adapters are customised according to the S-series standard.
- **Pin Grabber** – Miller etc.
- **CW-series** – Verachter etc.
- **SW-series** – Liebherr etc.

Automatic quick couplers

Automatic quick couplers allow for an even faster change of MOVAX piling equipment and other tooling. When connecting the MOVAX piling equipment to the excavator all connections including the mechanical, hydraulic and electrical connections are made automatically.

MOVAX Adapters are manufactured according the quick coupler brand and model and its specific dimensions.

Typical automatic quick couplers are, for example:

- **OilQuick** – OQ60, OQ70, OQ80 etc.
- **Likufix** – SW33, SW48 etc.

Other couplers & connectors

MOVAX Adapters for other type of couplers are manufactured according to the excavator's coupler or connector and its specific dimensions.

Typical couplers/connectors are, for example:

- **NTP**
- **Atlas**
- **Lehnhoff**
- **Liebherr 900**
- **Gjerstad**


WURTH
TIG

STATE-OF-THE ART MANUFACTURING

QUALITY

MOVAX is made in Hämeenlinna, Finland utilising high-class materials, equipment and components – and modern, state-of-the-art production technologies and machinery ensuring the highest possible quality of manufacture.

Movax Oy's own production is supported by a proven, high quality network of partners. The state-of-the-art production facilities & machinery, long-term, established and reliable partners combined with optimized logistics ensure both quality and cost-efficiency – as well as fast, on-time deliveries.

CERTIFIED MANAGEMENT SYSTEM

Movax Oy's Quality Management System is certified in accordance with ISO 9001-2015.


1137
P.SALONEN OY

MOVAX mFleetCare

MOVAX mFleetCare™ is a total service solution intended to maximise the productivity and the quality of the piling work when using MOVAX piling equipment. The goal of MOVAX mFleetCare is to ensure the maximum availability of the MOVAX piling equipment and to provide the operator with the required skills and best practices - and with superior support in all conditions and at all times – thus enabling the operator to perform the work with the highest productivity, accuracy and quality.

MOVAX mFleetCare addresses all aspects of ensuring the highest possible availability and the best use of MOVAX piling equipment. mFleetCare covers audits and inspections, preventive and corrective maintenance, training services for the continued growth of expertise and skills, efficient and fast on-site and remote support, installation and calibration services, as well as engineering and spare parts services.

MOVAX mFleetCare services are provided world wide by Movax Oy's own specialists and by a trained and certified network of partners. In addition, Movax Oy utilises the most modern IT-based solutions to provide support anywhere in the world, always and at any time.


MOVAX

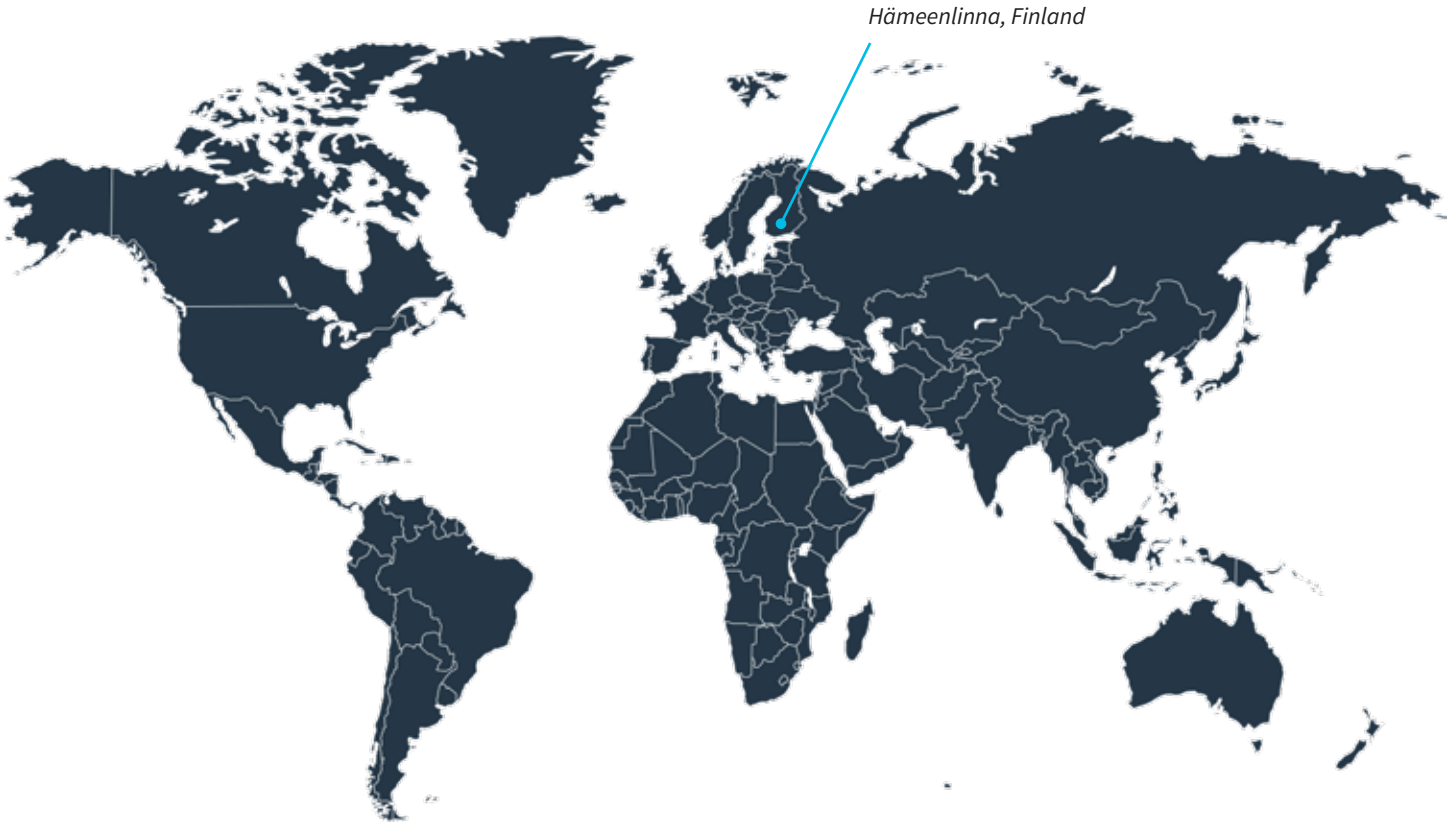
SERVICES

GLOBALLY LOCAL

MOVAX supports its world wide customers centrally from the factory and engineering office located in Hämeenlinna, Finland AND through a network of local partners all over the world.

MOVAX local partners are both trained and certified, and thus highly skilled, in providing the necessary support and after sales services to local customers in order to ensure the highest possible availability and reliability of the MOVAX piling equipment at all times and under all circumstances.

MOVAX also cooperates continuously with end-users as well as with its local partners to continuously develop the MOVAX piling technology. The global coverage and expertise ensures that varying conditions and requirements are truly taken into consideration in an optimised manner.



WORLD-WIDE LOCAL SUPPORT
IN MORE THAN 35 COUNTRIES

for MOVAX world wide partners kindly refer to:
movax.com/contact-us or scan the QR code.

MOVAX WAY-OF-PILING

UNIQUE, INNOVATIVE & VALUE-ADDING SOLUTIONS

MOVAX way-of-piling™ provides a most efficient, fast, flexible and versatile, accurate, safe and reliable way-of-working which results in a higher productivity and thus significant overall time and cost savings in a wide range of piling and foundation – soil improvement - applications.

BENEFITS

- **A total piling & foundation solution**
  A complete range of piling equipment and customised solutions for driven, bored and drilled piles
- **Unique, value-adding technology**
  Fast. Efficient. Versatile. Accurate. Safe. Reliable.
- **Globally proven technology & solutions**
  - Since 1993
  - Over 3000 deliveries
  - All over the world
  - Site & soil conditions from the arctic to the tropic
  - Numerous applications from rail, road and civil to waterways & piers, environmental & utilities
- **Globally supported sales and service**

HIGHER PRODUCTIVITY – SIGNIFICANT SAVINGS

Efficient. Fast. Versatile. Accurate. Safe. Reliable.

CIVIL ROAD RAIL UTILITIES ENERGY & ENVIRONMENT WATERWAYS

MOVAX way-of-piling

HIGHER PRODUCTIVITY - SIGNIFICANT SAVINGS

fast. efficient. versatile. accurate. safe. reliable.

Movax Oy

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