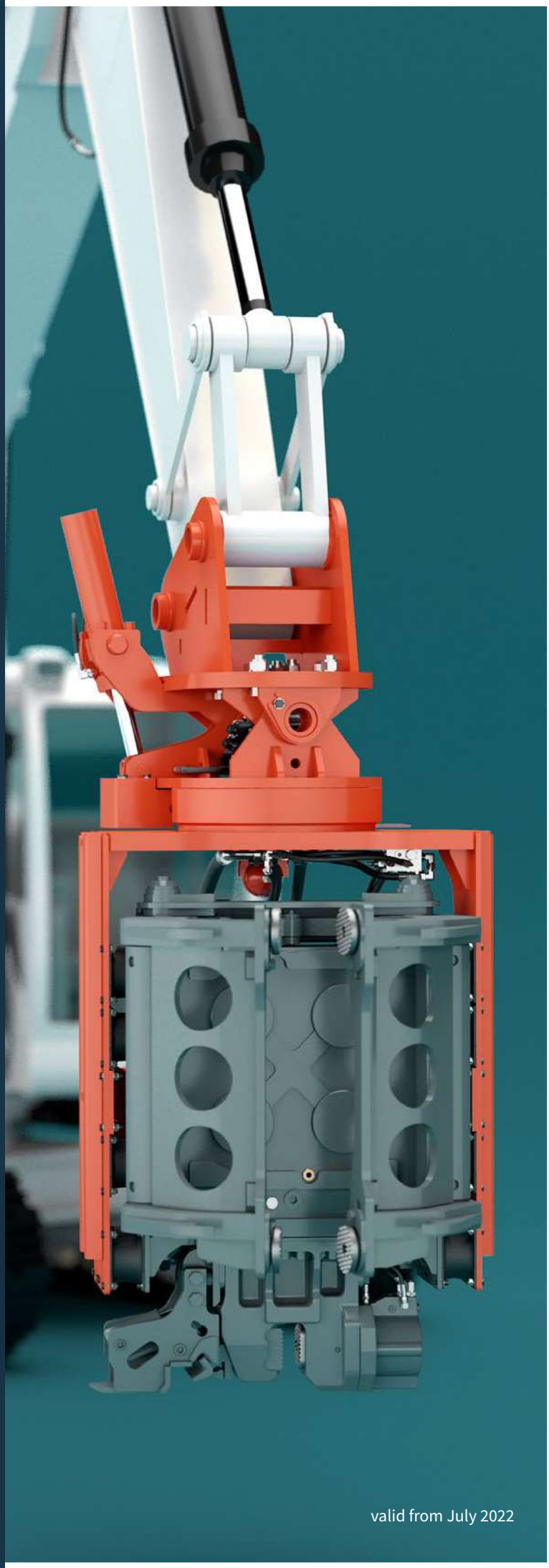
MOVAX

INNOVATIVE PILING SOLUTIONS

MOVAX PRODUCT CATALOGUE 2022



valid from July 2022

WWW.MOVAX.COM

TOTAL SOLUTION FOR PILING & FOUNDATION

CIVIL

ROAD

RAIL

UTILITIES

ENERGY & ENVIRONMENT

PIERS & WATERWAYS

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MOVAX

PILING EQUIPMENT

CUSTOMISED SOLUTIONS

HIGHER PRODUCTIVITY – SIGNIFICANT SAVINGS

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

MOVAX WAY-OF-PILING

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.

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.

QUALITY BUILT-TO-LAST

MOVAX is made with 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 Quality Management Systems is certified on accordance with ISO 9001:2015.

GLOBALLY PROVEN

With almost **30 years of experience** and more than **2500 units delivered** to all over the world and with a clear focus on the piling and foundation industry, 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.

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, performing trenching and excavation work in a wide range of applications from civil/ structural, rail and road to waterways & piers, utilities and environmental.

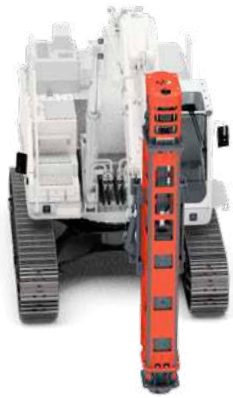
INNOVATION & CONTINUOUS DEVELOPMENT

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.

PILING & FOUNDATION EQUIPMENT

MOVAX piling equipment is 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.

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

MANIPULATORS

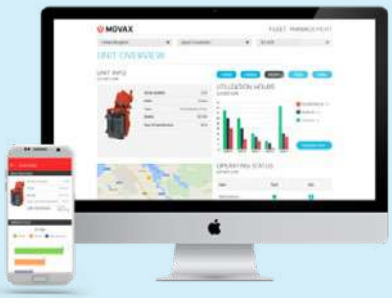
Manipulators (MPM) are designed for fast, flexible and efficient handling of different kinds of masts, gantries, and poles as well as a wide range of piles. Soft gripping surfaces are available to prevent damage of sensitive surfaces or coatings.

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

MOVAX CONTROL SYSTEM

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.

INFORMATION MANAGEMENT



The **MOVAX Information Management System (MIMS)** provides essential information about the piling process and the pile installation – mLogbook - as well as about the MOVAX piling equipment itself – mFLeet Management.

CUSTOMISED SOLUTIONS

MOVAX customised solutions include multi-tool piling leaders with tooling available for driven piles, pre-augering and CFA, and column stabilisation leaders.

MPL-200

Multi-tool piling leader, MPL-200, is a multi-purpose piling leader for micro piling designed for small and medium size excavators. Tooling alternatives include vibratory pile drivers, hydraulic hammers and rotary drives for pre-augering.

MPL-300

Multi-tool piling leader, MPL-300, is a multi-purpose piling leader designed for medium to large size excavators. Tooling alternatives include vibratory pile drivers, hydraulic impact type hammers and rotary drives for pre-augering and CFA (continuous flight auger) piling.

MPL-400

Multi-tool piling leader, MPL-400, is a heavy duty, multi-purpose piling leader designed for large size excavators. Tooling alternatives include vibratory pile drivers, hydraulic impact type hammers and rotary drives for pre-augering and CFA (continuous flight auger) piling.

MSL-300

Stabilisation leader, MSL-300, is an column stabilisation leader designed for medium to large size excavators. The MSL-300 can be operated with both wet and dry binder material.

MOVAX CONTROL SYSTEM

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.

INFORMATION MANAGEMENT

The **MOVAX Information Management System (MIMS)** provides essential information about the piling process and the pile installation – mLogbook - as well as about the MOVAX piling equipment itself – mFLeet Management.

MOVAX WAY-OF-PILING

RAIL

ROAD

UTILITIES

PIER & WATERWAYS

CIVIL

ENERGY & ENVIRONMENT

MOVAX
MOVAX
SG-75

VIBRATORY PILE DRIVERS

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.

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.

FEATURES

- **Excavator-mounted**
  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 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; and for excavators ranging from 8 to 50 ton – thus always ensuring the optimum size and correct combination of vibratory pile driver and excavator.
- **Resonance-free**
  Available with fixed eccentric moment or with resonance-free start/stop (V).
- **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.
- **MOVAX Control System**
  Controlled with the MOVAX Control System, mControl+ for precision and accuracy.
- **MOVAX Information Management System**
  Available with the MOVAX MIMS Information Managament System: mFleetManagement for monitoring MOVAX piling equipment operation, performance and condition; and mLogbook for monitoring and reporting the piling works.

Side grip vibratory pile drivers for
HANDLING, PITCHING, DRIVING AND EXTRACTING PILES

SIDE GRIP PILE DRIVERS

SELECTION

The suitable MOVAX side grip pile driver-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 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.

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.

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. Due to the modular design the same MOVAX side grip pile driver can be used to drive different type of piles.

Site conditions

MOVAX side grip pile drivers are the optimum solution for sites with limited access, space or headroom. Resonance-free models are selected for sensitive areas where disturbances to the surroundings are to be minimized.

SELECTION CHART (preliminary)

EXCAVATOR CLASS/ PILE SIZE (length/weight)	33-40 ton	28-32 ton	23-28 ton	20-24 ton	17-21 ton	13-16 ton	7-11 ton
6 m x 2800 kg 12 m x 1900 kg 16 m x 1300 kg	**SG-75** **SG-75V**						
8 m x 2300 kg 12 m x 1800 kg 16 m x 1200 kg		**SG-60** **SG-60V**	**SG-50** **SG-50V**	**SG-45** **SG-45V**			
6 m x 1200 kg 12 m x 1000 kg 16 m x 900 kg					**SG-40N**	**SG-30N**	
4 m x 400 kg 6 m x 200 kg							**SG-15N**
SUITABLE PILES							
Sheet piles / (trench sheets)*	width 400-1200 mm				width 400-1200 mm *(330-600 mm)		width 400-600 mm *(330-600 mm)
H-beams	H180-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

NOTE!

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 PILE DRIVERS

RESONANCE FREE

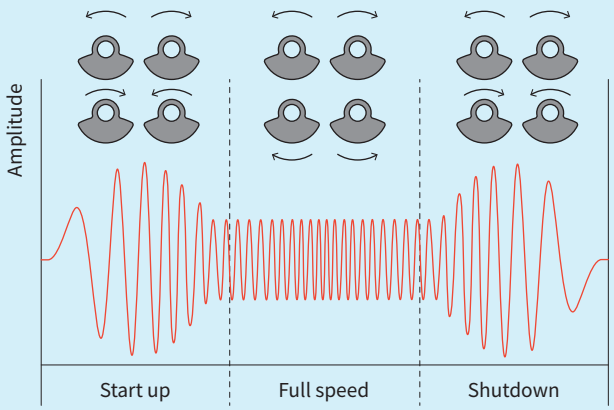
MOVAX side grip pile drivers are available in two different configurations: with fixed eccentric moment and resonance free (V-models).

Disturbances to the surrounding environments can be minimised by operating at high frequencies (typically above 38 Hz) to avoid oscillation at the natural frequencies of the surrounding structures. MOVAX SG-V-models are high frequency (38–50 Hz) resonance-free vibratory pile drivers which allow starting up and shutting down the side grip pile driver without vibration.

This is achieved by shifting the upper row eccentrics with respect to the lower row eccentrics. The total eccentric moment of the side grip pile driver can be switched from 0% during start-up to 100% during operation and back to 0% during shut down, hence resonance-free. The resonance-free start-up and shutdown means that the SG-V -models are the ideal solution when working in urban areas or in sensitive environments. In addition to safer vibration, the SG-V-models also cause less noise and are faster and more comfortable to use.

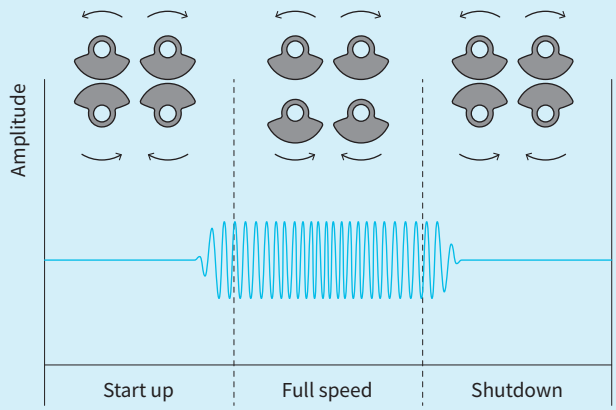
STANDARD ECCENTRIC MOMENT

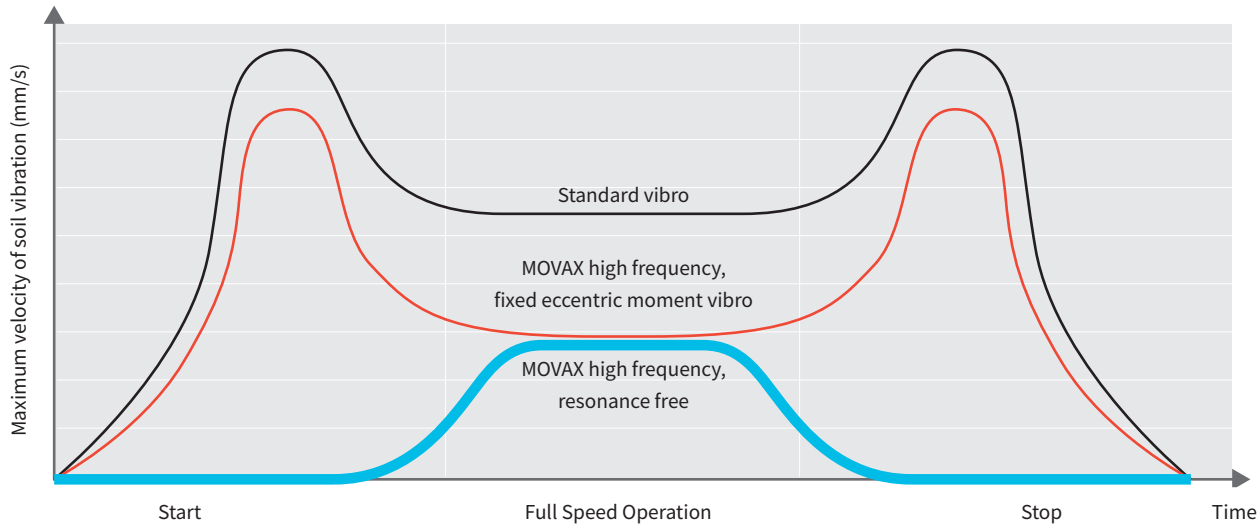
SG-MODELS



RESONANCE FREE

SG (V)-MODELS

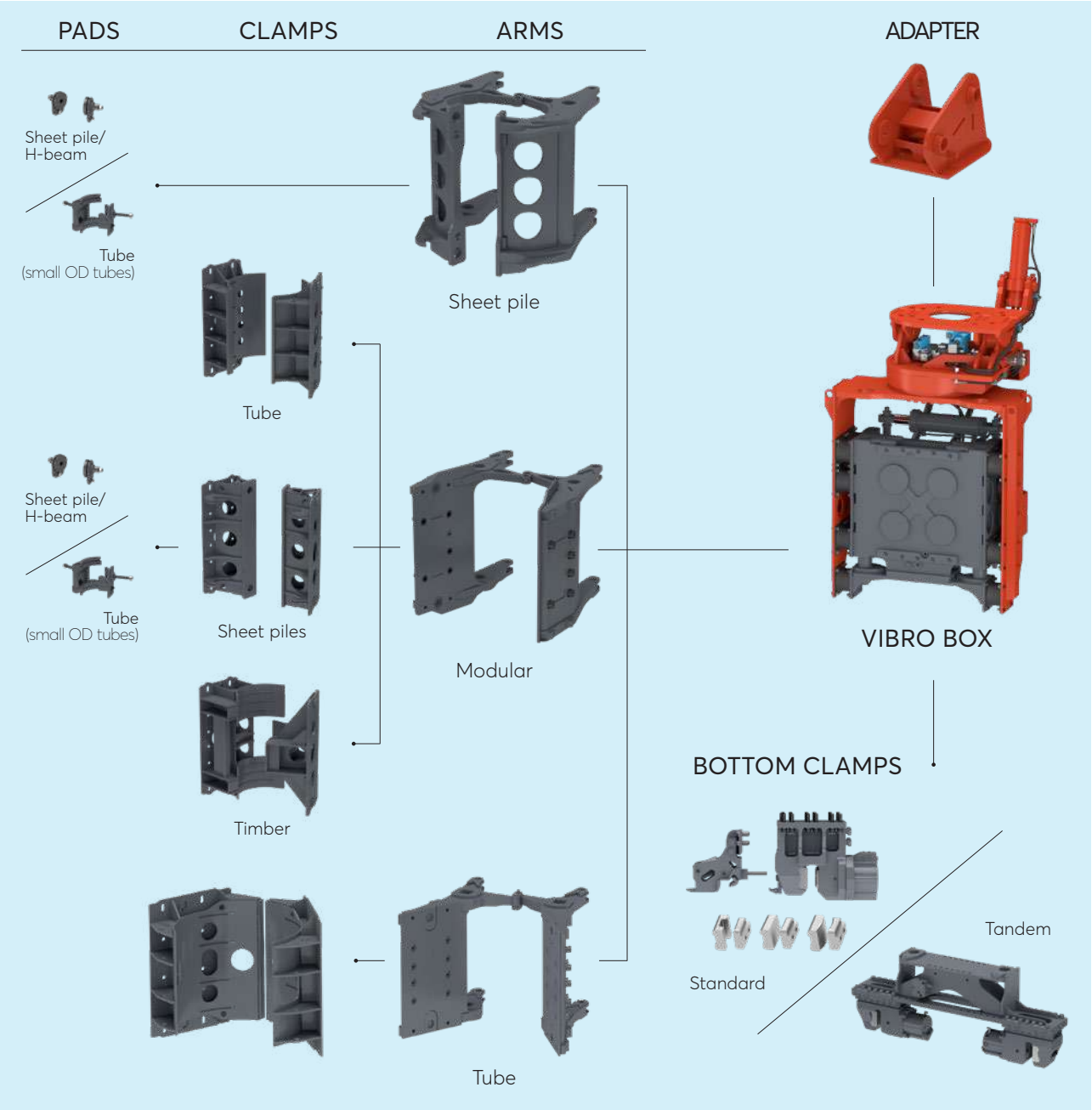




SIDE GRIP PILE DRIVERS

MOVAX MODULAR SYSTEM

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.

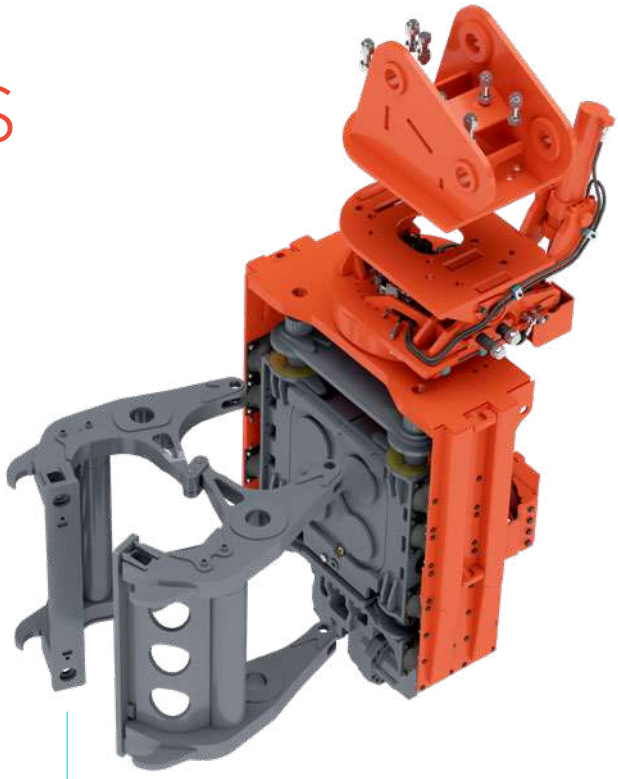


NOTE!

The MOVAX side grip pile driver is always equipped with one arm/clamp system. The unit is equipped with either sheet pile arms, modular arms or modular tube arms, and the standard bottom clamp. The modular arms can further be equipped with clamps for sheet piles, tube piles or timber piles. The tube arms are equipped with the desired size tube pile clamps.

MOVAX MODULAR SYSTEM

SHEET PILE ARMS



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 arms are available for MOVAX side grip pile driver models SG-45(V)...SG-75(V).

NOTE! Each tube size requires its own tube pads in order to ensure proper operation.

SHEET PILE PADS

for sheet piles and H-beams

Standard sizes
w 400–1200 mm / H100–H500

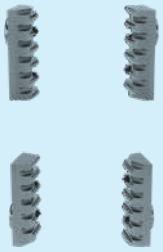
TUBE PADS

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 are available by request.



CUSTOMISED PADS

for rail tracks etc profiles

Customised pads and sizes are available upon special request

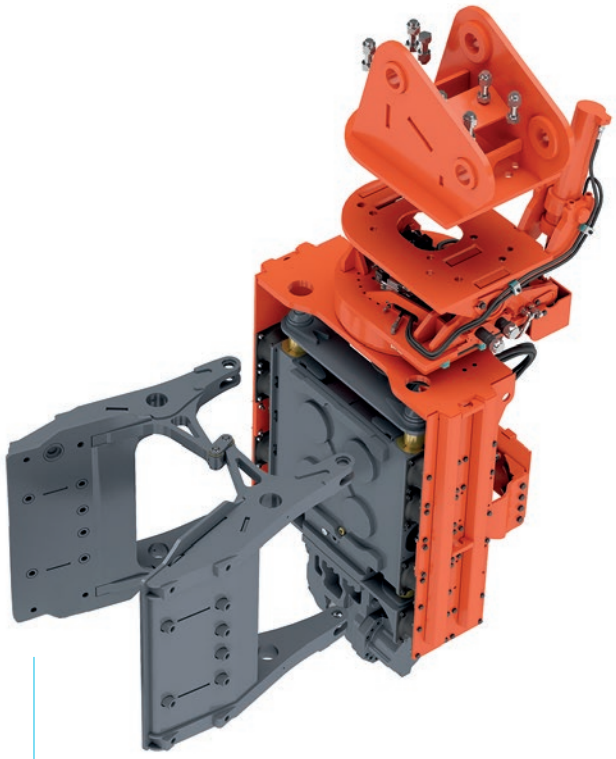
MOVAX MODULAR SYSTEM

MODULAR ARMS

Modular arms are suitable for driving sheet piles, H-beams, timber piles and tubular steel piles. Individual tube clamps are utilised for tubular steel piles up to OD 762 mm and Sheet pile clamps with Tube pads up for tubular steel piles up to OD 273 mm.

Modular arms are available for all MOVAX side grip pile driver models SG-15N...SG-75(V).

Note! Each tube size requires its own tube clamps/pads in order to ensure proper operation, whereas a range of timber piles can be driven with the same timber clamps.



TUBE CLAMPS

for tubular steel piles from OD 88.9 mm up to OD 323.9/508/762 mm:

SG-45(V)...SG-75(V)
Ø 88.9–762 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 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

Customised sizes are available by request.

TIMBER CLAMPS

for timber piles from OD 100/120/160 mm up to OD 300/325/600 mm:

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

Standard sizes
SG-45 (V) ... SG-75 (V)
Ø 160–420 mm & Ø 430–600 mm

SG-30N - SG-40N
Ø 120–250 mm & Ø 220–325 mm

SG-15N
Ø 100–200 mm & Ø 200–300 mm

Available also for square timber piles.

Customized sizes and e.g. clamps for square timber piles are available by request.

SHEET PILE CLAMPS

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

SHEET PILE PADS

SG-45 (V) ... SG-75 (V)
w 400–1200 mm/H180-H500

SG-30N...SG-40N
w 400–1200 mm/H100-H400

SG-15N
w 400–600 mm/H100-H140

TUBE PADS

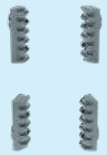
Standard sizes

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

CUSTOMISED PADS

for rail tracks etc profiles

Customised sizes are available by request.



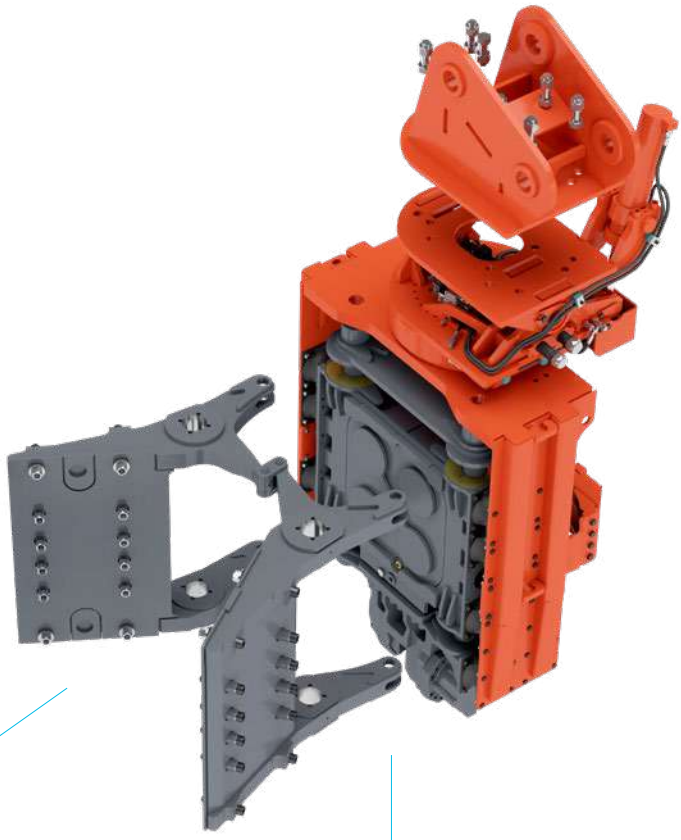
MOVAX MODULAR SYSTEM

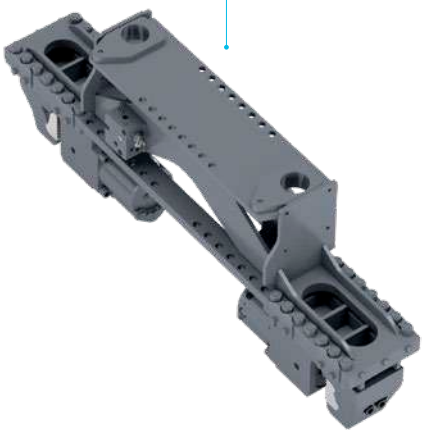
TUBE ARMS

Special modular tube arms are utilised to handle and drive large diameter tubes from 508 mm up to OD 1220 mm. A tandem bottom clamp is available for the same tube sizes as the tube arms.

Tube arms are available for MOVAX side grip pile driver models SG-45(V)...SG-75(V)

NOTE! Each tube size requires its own tube clamp in order to ensure proper operation.





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

Available for MOVAX Side grip pile driver models SG-45(V)...SG-75(V)

TUBE PADS

Standard sizes

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

MOVAX MODULAR SYSTEM

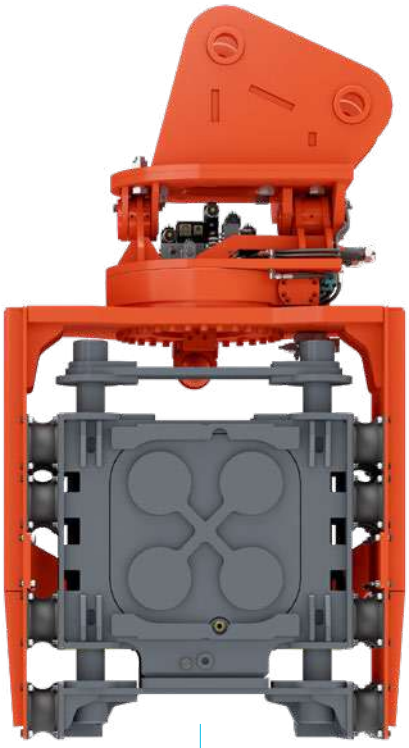
BOTTOM CLAMP

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.

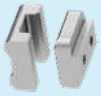
A 4th jaw can be provided for added pile handling capabilities. The optional 4th jaw is available for model SG-45(V)...SG-75(V).



4TH JAW

optional, available for SG-45(V)...SG-75(V)

SHEET PILE PADS



DOUBLE (SHEET) PILE PADS

Available for double-Z type sheet piles

TUBE PADS

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

TOP HITTER

Standard sizes

OD 88,9...323,9 mm
(one size for full range)

Top hitters for larger OD piles and e.g. square timber piles are available by request.

DOOSAN

SIDE GRIP PILE DRIVERS

PILE HANDLING AND DRIVING

MOVAX side grip pile drivers are capable of handling, pitching, driving and extracting a wide range of different piles without manual handling or the need of assisting machinery or personnel.

HANDLING

PITCHING

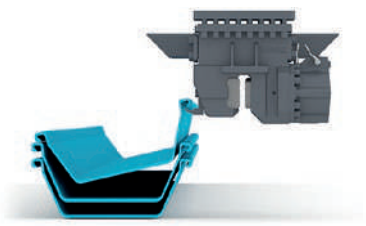
DRIVING/EXTRACTING (SIDE GRIP)

DRIVING/EXTRACTING (BOTTOM CLAMP)

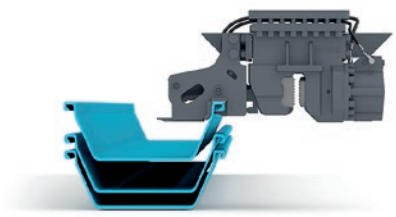
The MOVAX side grip pile driver is always equipped with one arm/clamp system. The arm/clamp system is selected based on the type of piles to be driven.

SHEET PILE ARMS

Special sheet pile arms are optimized for handling, pitching, driving and extracting sheet piles and H-beams (the sheet pile arms can further be equipped with tube pads for smaller OD tubes).



Lifting lever



4th jaw (optional)

Clamp hooks

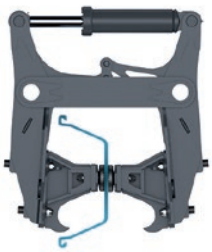
Clamping the web

Handling/pitching/driving/extracting (sheet piles)

Handling/pitching/driving/extracting (H-beams)

MODULAR ARMS

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



Handling/pitching/driving/extracting (sheet piles)

Handling/pitching/driving/extracting (tube piles)

Handling/pitching/driving/extracting (timber piles)

TUBE ARMS

The tube arms are optimized for handling, pitching, driving and extracting larger tube piles.

Handling/pitching/driving/extracting (tube piles)

MOVAX

SIDE GRIP VIBRATORY PILE DRIVERS

TECHNICAL DATA

SG (V) RESONANCE-FREE SERIES

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	1115	1180 - 1436	1180 - 1436	1180 - 1436
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	low	low	low
Resonance-free start/stop		yes	yes	yes	yes
Driving method		vibration	vibration	vibration	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	125	100
Engine power, min., TIER IV	kW	200	160	135	120

Suitable piles					
Length & weight		6 m x 2800 kg	8 m x 2300 kg	8 m x 2300 kg	8 m x 2300 kg
		12 m x 1900 kg	12 m x 1800 kg	12 m x 1800 kg	12 m x 1800 kg
		16 m x 1300 kg	16 m x 1200 kg	16 m x 1200 kg	16 m x 1200 kg
Length & weight					
Sheet piles	width	400-1200 mm			
	depth	265 mm			
H-beams	size	H180-H500			
Timber piles	size	Ø 160 - 420 mm			
Timber piles	size	Ø 430 - 600 mm			
Tubular steel piles, tubes	size	Ø 88,9 - 762 mm (1220 mm)			

SG STANDARD SERIES

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	1115	1180 - 1436	1180 - 1436	1180 - 1436
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	normal	normal	normal
Resonance-free start/stop		no	no	no	no
Driving method		vibration	vibration	vibration	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	125	100
Engine power, min., TIER IV	kW	200	160	135	120

Suitable piles					
Length & weight		6 m x 2800 kg	8 m x 2300 kg	8 m x 2300 kg	8 m x 2300 kg
		12 m x 1900 kg	12 m x 1800 kg	12 m x 1800 kg	12 m x 1800 kg
		16 m x 1300 kg	16 m x 1200 kg	16 m x 1200 kg	16 m x 1200 kg
Length & weight					
Sheet piles	width	400-1200 mm			
	depth	265 mm			
H-beams	size	H180-H500			
Timber piles	size	Ø 160 - 420 mm			
Timber piles	size	Ø 430 - 600 mm			
Tubular steel piles, tubes	size	Ø 88,9 - 762 mm (1220 mm)			

SGN LITE SERIES

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	normal	normal
Resonance-free start/stop		no	no	no
Driving method		vibration	vibration	vibration
Swing/tilt angle	°	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		6 m x 1200 kg 8 m x 1000 kg 10 m x 900 kg	6 m x 1200 kg 8 m x 1000 kg 10 m x 900 kg	4 m x 400 kg 6 m x 200 kg
Length & weight				
Sheet piles	width	400 - 1200 mm	400 - 1200 mm	400 - 600 mm
	depth	260 mm	260 mm	140 mm
Trench sheets	width	330 - 600 mm	330 - 600 mm	330 - 600 mm
H-beams	size	H100-H400	H100-H400	H100-H140
Timber piles	size	Ø 120 - 250 mm	Ø 120 - 250 mm	Ø 100 - 200 mm
Timber piles	size	Ø 220 - 325 mm	Ø 220 - 325 mm	Ø 200 - 300 mm
Tubular steel piles, tubes	size	Ø 88,9 - 508 mm	Ø 88,9 - 508 mm	Ø 88,9 - 323,9 mm

LIEBHERR
944
Urð og Grjót
LIEBHERR
1944

PILING HAMMERS

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.

FEATURES

- **Excavator-mounted**

  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 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; and for excavators ranging from 20 (23) to 50 ton – thus always ensuring the optimum size and correct combination of piling hammer and excavator.

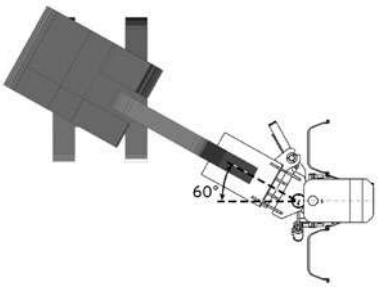
- **MOVAX Modular System**
  - Standard mounting with pin adapter and +/- 15° tilt. Bolt-on plate mounted rotation device +/- 60° available for optimum sheet pile driving (note! Models DH-15 and DH-25 only).
  - Versatility based on the MOVAX Modular System™ which enables the use of the same unit for a wide range of different piling requirements and type of piles. The modular system includes a wide range of pile caps.
  - 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.
  - 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.

- **MOVAX Control System**

  Controlled with the MOVAX Control System, mControl+ for precision and accuracy.

- **MOVAX Information Management System**

  Available with the MOVAX MIMS Information Managament System: mFleetManagement for monitoring MOVAX piling equipment operation, performance and condition; and mLogbook for monitoring and reporting the piling works.



Tilt/rotation device

Hydraulic, impact-type piling hammers for
DRIVING LOAD BEARING PILES AND ASSISTING IN SHEET PILE DRIVING

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 (preliminary)

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

NOTE!

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.

MOVAX MODULAR SYSTEM

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

DH-15, DH-25, DH-35 and DH-45 (S)

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

DH-15, DH-25, DH-35 and DH-45 (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

Pile caps are available flat or with either internal or external guidance;

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

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.

MOVAX MODULAR SYSTEM

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- and 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)

MOVAX MODULAR SYSTEM

PILE HANDLER

The MOVAX DH piling hammers without rotation device 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.

PILE HANDLER

Technical data		
Lifting capacity	kg	2500
Wire rope length	m	36
Total weight (winch, rope, guide)	kg	160

MOVAX

PILING HAMMERS

TECHNICAL DATA

DH STANDARD SERIES

Model		DH-45	DH-35	DH-25	DH-15
Total weight*					
Excavator mounted	kg	6700	5750	4400/4700***	3500/3800***
MPL-mounted	kg	5850	4900	3700	2800
Piling rig-mounted	kg	5850	4900	3700	2800
Crane-mounted	kg	5850	4900	3700	2800
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	0–25	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	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
Total height					
Excavator mounted	mm	4930	4460	4460	3850
MPL-mounted	mm	4930	4460	4460	3850
Piling rig-mounted	mm	5080	4610	4610	4000
Crane-mounted	mm	5080	4610	4610	4000
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) 40–50	(33) 35–50	(28) 30-50	(20) 23–50

NOTE!
** excluding adapter/mounting bracket*
*** excavator-mounted only*
**** with tilt/rotation*

MOVAX

PILING DRILLS

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

FEATURES

- **Excavator-mounted**

  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 size range***
  Available in four different models for different piling requirements and applications;
  - **TAD-32** and **TAD-51** are lighter weight piling drills with a maximum drilling depth of 9 meters intended primarily for rail roaders and smaller excavators.
  - **KB-70S** is a heavy duty piling drill (kelly bar) with a maximum drilling depth of 15 meters. The KB-70S is intended for larger rail roaders and excavators.
  - **KB-70L** is a heavy duty piling drill (kelly bar) with a maximum drilling depth of 20 meters. The KB-70S is intended for 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 lead augers in different sizes and for different soil conditions. MOVAX KB-piling drill-models can further be equipped with a service winch (optional) and with a casing adapter (optional).

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

- **MOVAX Information Management System**

  Available with the MOVAX MIMS Information Managament System: mFleetManagement for monitoring MOVAX piling equipment operation, performance and condition; and mLogbook for monitoring and reporting the piling works.

  *suitability of carrier shall always be confirmed by Movax Oy.

KB-70S with casing adapter (optional) and service winch (optional)

Telescopic, kelly-bar type piling drills for
CAST-IN SITU PILING

PILING DRILLS

TECHNICAL DATA

KELLY-BAR SERIES

Model		KB-70L	KB-70S
Drilling depth*	m	20	9-15
Weight**	kg	6700	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***		35–50	(30) 35–50

Lead augers		
Model		clay, 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

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

Casing adapter

TELESCOPIC SERIES

Model		TAD-32	TAD-51
Drilling depth	m	9	9
Weight*	kg	3200	3200
Height*	mm	3855	3855
Oil flow rate	l/min	75-250	75-120
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		clay, rock or heavy duty
Outer diameter	mm	400-1000

NOTE!

** excluding adapter and lead auger*

*** stick or boom mounted; excavator suitability to be checked*

TAD-32

MANIPULATORS

MOVAX 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.

The manipulator has a 360 degree continuous rotary gear for unlimited and precise handling and positioning and 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 prevent efficiently damaging sensitive masts, gantries or poles.

FEATURES

- **Excavator-mounted**

  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.

- **MOVAX Modular System**

  Available for masts, poles gantries and different type of piles and with gripping surfaces tailor-made for the profiles to be handled.

- **MOVAX Control System**

  Controlled with the MOVAX Control System, mControl+.

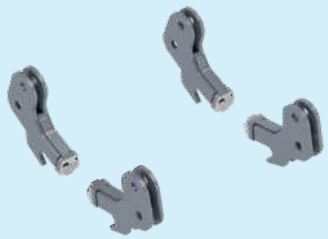
  - Easy & exact pile positioning with integrated inclination sensor and mControl+ display
  - Smooth movements with thumb wheel operated proportional control valves
  - Clamping pressure shown on screen
  - Integrated safety lock valves on cylinders
  - Safety switch for clamp opening
  - Adjustable gripping force to prevent damage of for instance galvanized poles or other sensitive profiles

MOVAX MODULAR SYSTEM

MANIPULATORS

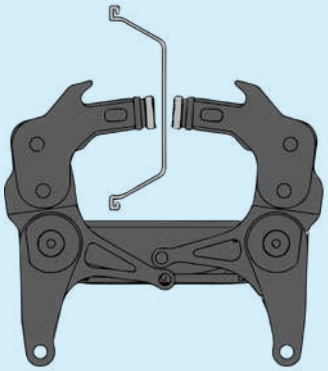
The MOVAX Modular System enables the use of the same Manipulator for the handling of a wide range of different type of profiles ranging from double-U-, U-, H-, and I- to rectangular- and tubular-shapes as well as sheet piles, tubular steel piles, timber piles and precast concrete piles. Gripping surfaces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

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



SHEET PILE CLAMPS

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

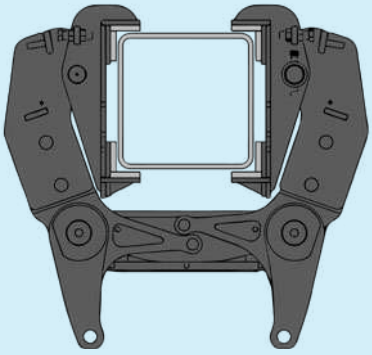


TUBE CLAMPS

for tubular steel pipes
OD 88.9–1220 mm

CUSTOM CLAMPS

for round, square, hexagonal, etc.
OD up to 1220 mm
Also conical shapes
With soft gripping surfaces to protect the surface coating



MANIPULATORS

TECHNICAL DATA

MPM SERIES

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

330D

TECHNICAL SPECIFICATION

MULTI-TOOL PILING LEADERS

The excavator-mounted MOVAX multi-tool piling leader provides a 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.

MOVAX MPL multi-tool piling leaders are available with a wide range of tooling for different piling and foundation applications ranging from driven piles to CFA and pre-augering. The leader and its tooling are designed to work on a standard excavator with normal auxiliary hydraulics and are controlled with the MOVAX Control System. An optional stability monitoring system is available upon request.

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

MOVAX MPL multi-tool piling leaders are based on a modular concept and always customised to meet customer-specific requirements. MOVAX customises and manufactures three (3) different size MPL multi-tool piling leaders to provide the solution for a wide range of carriers and applications.

Multi-tool piling leader model	MPL-400	MPL-300	MPL-200
Type	Heavy duty, multi-purpose piling leader	Multi-purpose piling leader	Micropiling multi-tool leader (incl. solar piling)
Effective piling length/drilling depth	12 m	12 m	6 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	Hydraulic hammer Rotary drive for pre-auger Vibratory pile driver
Mounting (excavator class)	Boom (35-50 ton)	Boom (30-50 ton) Stick (35-50 ton)	Chassis (8-20 ton) Boom (16-30) Stick (23-35)
Control	mControl+ Pro	mControl+ Pro	mControl+ Pro
Information management	mFleetManagement mLogbook	mFleetManagement mLogbook	-

NOTE!

In addition to the multi-tool piling leaders with a standardised effective length/depth, 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.

Multi-tool piling leaders with tooling for

MULTIPLE PILING TASKS

MULTI-TOOL PILING LEADER

MPL-400

FEATURES

- Excavator boom-mounted, heavy duty Multi-tool piling leader
- Tooling alternatives include vibratory pile driver, hydraulic double-acting impact-type piling hammer and rotary drives for pre-augering and CFA
- Suitable for a wide range of piling applications, including driven piles (sheet piles, tubular steel piles, H-beams and precast concrete piles) and bored piles (CFA)
- Multi-tool piling leader and tooling designed to work on a standard excavator with normal auxiliary and bucket hydraulics. All leader related hydraulics are integrated onto the leader itself
- Equipped with a fully integrated service winch for handling of piles and tooling
- Scalable to effective pile lengths/CFA & pre-augering depths between 6 and 12 meters by optional leader section and corresponding augers, pile/auger guides, etc.
- Tooling can be easily changed and the leader can also be attached and detached enabling other usage of the excavator
- Multi-tool piling leader and tooling controlled and operated with the MOVAX Control System, mControl+ Pro
- Stability Monitoring System available as an option
- MOVAX Information Management System for reporting piling works (mLogbook) and monitoring equipment (mFleetManagement)

TECHNICAL DATA

Multi-tool piling leader, MPL-400

Model		MPL-400
Weight (without adapter & tool)	kg	7000–8000
Height	m	15
Forward inclination	°	20
Backward inclination	°	20
Tilt	°	8
Rotation (optional)	°	60
Winches		
Main winch line pull	kN	120
Aux winch line pull	kN	57
Crowd system		
Pull down force	kN	120
Extraction force	kN	120/360
Transport (w/o excavator)		
Length	mm	8700
Width	mm	2900
Height	mm	2900
Weight (w/o tool)	kg	7000–8000
Excavator class*	t	35–50

NOTE!
** depending on tooling; additional counterweight might be required depending on excavator brand & model.*

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		

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

Piling hammer

Model		DH-35	DH-45
Total weight	kg	4900	5850
Ram weight	kg	3100	4000
Blows per minute	1/min	0-100	0-100
Impact energy	kNm	0-35	0-45
Drop height	m	0-1,2	0-1,2
Total height	mm	4460	4930
Frame width	mm	650	650
Transport width	mm	1200	1200
Transport depth	mm	1870	1870
Oil flow	l/min	80-120	80-120
Operating pressure	bar	250	280
Pressure relief set, max	bar	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, 12 m		
Precast concrete	up to 250 x 250 mm, max length 12 m		

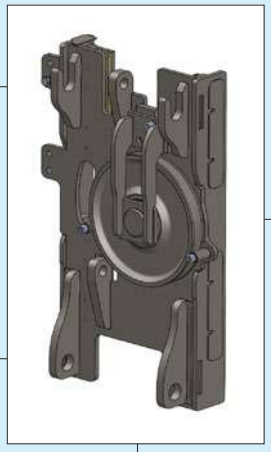
Rotary drives for CFA/pre-augering

Model/ Application		PD-100 Pre-auger	RHP-10 CFA
Total weight	kg	1000	1800
Torque, max	kNm	100	100
Drilling speed	rpm	0-40	0-50
Connecting pin, hexagonal	mm	130	N/A
Oil flow	l/mm	240	250
Maximum pressure	bar	350	320
Pre-augering			
Depth	m	12	12
Hole diameter	mm	300-800	300-800
CFA			
Depth	m	N/A	12
Hole diameter	mm	N/A	300-800

MOVAX
CAT

MOVAX MODULAR SYSTEM

The MOVAX Multi-tool piling leader MPL-400 is of a modular design and thus suitable for a wide range of applications and piling technologies, including driven piles, pre-augering and CFA. The tooling can be easily and quickly changed and the leader can be modified for any given pile length or pre-augering/CFA depth between 6 and 12 meters to allow for low head room operation.



Tool mounting bracket for fast and easy change of tooling.

Piling hammers

MOVAX DH-35 or DH-45
0-35/0-45 kNm
0-100 blows/min
0-1,2 m drop height

Vibratory pile driver

MOVAX TG-120
718 kN | 12,6 kgm
2300 1/s | 14,5/20 mm

MOVAX TG-160
912kN | 16 kgm
2300 1/s | 15,2/25 mm

Pre-auger

PD-100
100 kNm
0-40 rpm

CFA Rotary drive

RHP-10
Mounted directly onto the leader
100 kNm
0-50 rpm

The MOVAX MPL-400 is always customised to meet customer-specific requirements. Technical parameters can be tailored and accessories are available for various tooling and applications.

Main winch 120 kN, available with 12 or 36 ton lifting force *(1x or 3x winch line pull).*

Available with optional 5,7 ton service winch for lifting piles, augers and reinforcements.

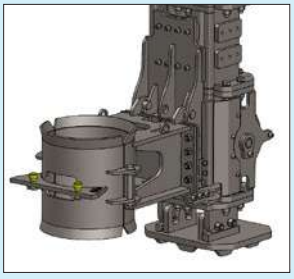
Mounted directly onto excavator main boom.

Excavator-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.



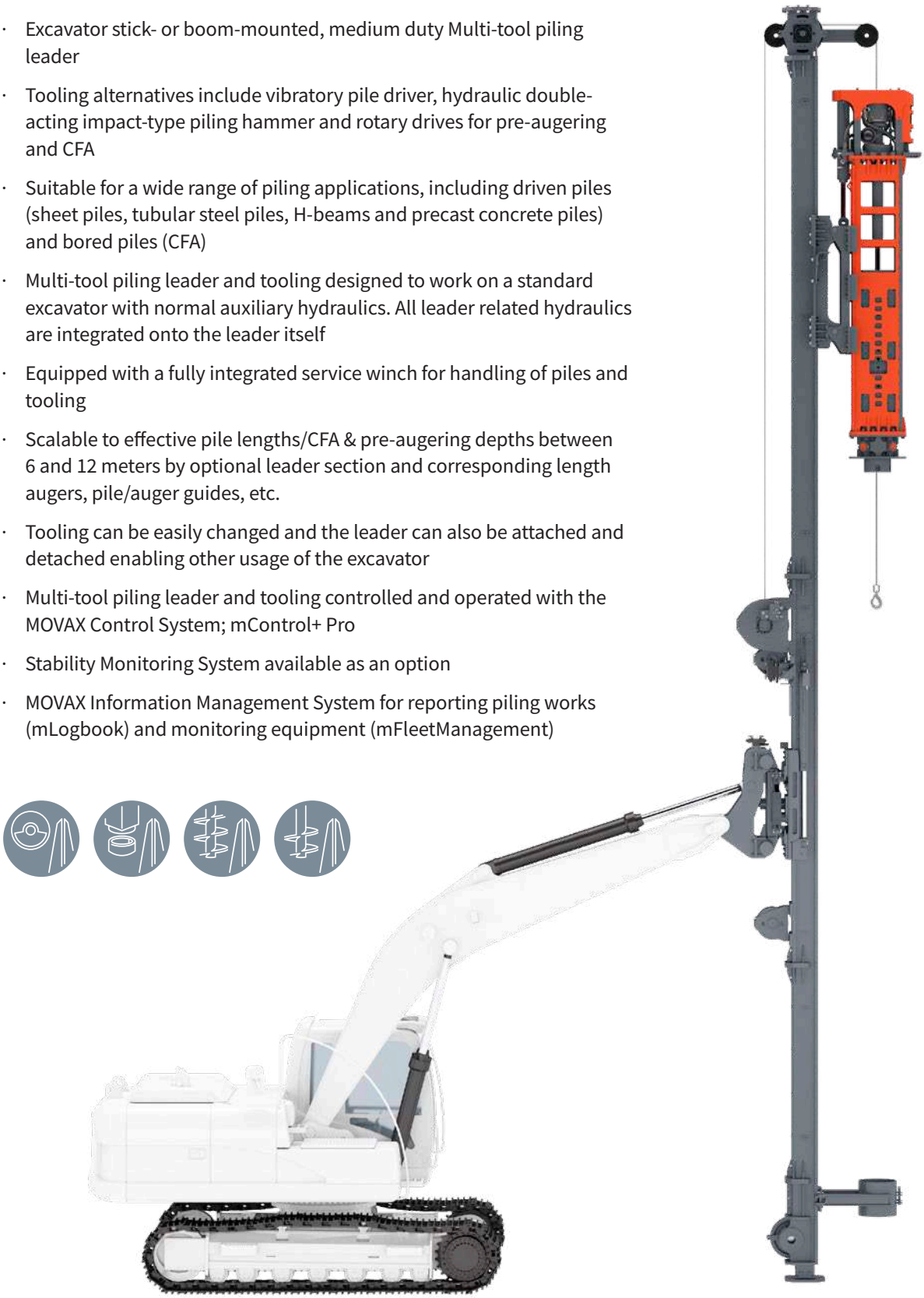
Lead augers and augers are available for different soil conditions and with different diameters.

MULTI-TOOL PILING LEADER

MPL-300

FEATURES

- Excavator stick- or boom-mounted, medium duty Multi-tool piling leader
- Tooling alternatives include vibratory pile driver, hydraulic double-acting impact-type piling hammer and rotary drives for pre-augering and CFA
- Suitable for a wide range of piling applications, including driven piles (sheet piles, tubular steel piles, H-beams and precast concrete piles) and bored piles (CFA)
- Multi-tool piling leader and tooling designed to work on a standard excavator with normal auxiliary hydraulics. All leader related hydraulics are integrated onto the leader itself
- Equipped with a fully integrated service winch for handling of piles and tooling
- Scalable to effective pile lengths/CFA & pre-augering depths between 6 and 12 meters by optional leader section and corresponding length augers, pile/auger guides, etc.
- Tooling can be easily changed and the leader can also be attached and detached enabling other usage of the excavator
- Multi-tool piling leader and tooling controlled and operated with the MOVAX Control System; mControl+ Pro
- Stability Monitoring System available as an option
- MOVAX Information Management System for reporting piling works (mLogbook) and monitoring equipment (mFleetManagement)



TECHNICAL DATA

Multi-tool piling leader, MPL-300

Model		MPL-300
Weight (without adapter & tool)	kg	4000–4500
Height	m	15
Forward inclination	°	20
Backward inclination	°	20
Tilt	°	8
Rotation (optional)	°	60-90
Winches		
Main winch line pull	kN	57
Aux winch line pull	kN	25
Crowd system		
Pull down force	kN	57/114
Extraction force	kN	57/171
Transport (w/o excavator)		
Length	mm	8600
Width	mm	1800
Height	mm	2000
Weight (w/o tool)	kg	4000–5000
Excavator class*	t	30–50

NOTE!
** depending on tooling; additional counter weight might be required depending on excavator brand & model.*

Vibratory pile drivers

Model		TG-90	TG-120
Total weight (transport)	kg	2400	2460
Total weight (operating)	kg	2325	2385
Dynamic weight	kg	1750	1810
Dynamic weight (excl. clamp)	kg	1170	1230
Height	mm	2500	2500
Depth	mm	1330	1330
Width	mm	460/410*	460/410*
Eccentric moment	kgm	9,6	12,6
Frequency	1/s	2300	2300
Line pull, max	kN	200	200
Amplitude	mm	11,5/16**	14,5/20**
Centrifugal force	kN	544	718
Oil flow	l/min	200	240
Operating pressure, max	bar	350	350
Excavator class	ton	30-45	35-50
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		

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

Piling hammer

Model		DH-15	DH-25
Total weight	kg	2800	3700
Ram weight	kg	1360	2060
Blows per minute	1/min	0-100	0-100
Impact energy	kNm	0-15	0-25
Drop height	m	0-1,2	0-1,2
Total height	mm	3850	4460
Frame width	mm	500	500
Transport width	mm	1200	1200
Transport depth	mm	1870	1870
Oil flow	l/min	80-120	80-120
Operating pressure	bar	150	200
Pressure relief set, max	bar	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		

Rotary drives for CFA/pre-augering

Model/ Application		PD-50 Pre-auger	RHP-5 CFA
Total weight	kg	600	1400
Torque, max	kNm	50	50
Drilling speed	rpm	0-40	0-50
Connecting pin, hexagonal	mm	70	N/A
Oil flow	l/mm	240	250
Maximum pressure	bar	350	320
Pre-augering			
Depth	m	12	12
Hole diameter	mm	300-600	300-600
CFA			
Depth	m	N/A	12
Hole diameter	mm	N/A	300-600

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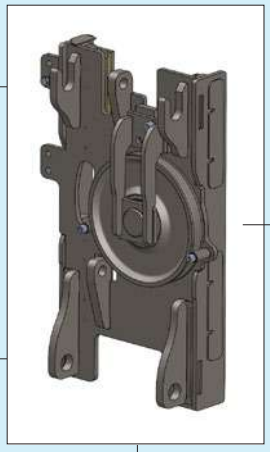
MOVAX MODULAR SYSTEM

The MOVAX Multi-tool piling leader MPL-300 is of a modular design and thus suitable for a wide range of applications and piling technologies, including driven piles, pre-augering and CFA. The tooling can be easily and quickly changed and the leader can be modified for any given pile length or pre-augering/CFA depth between 6 and 12 meters to allow for low head room operation.



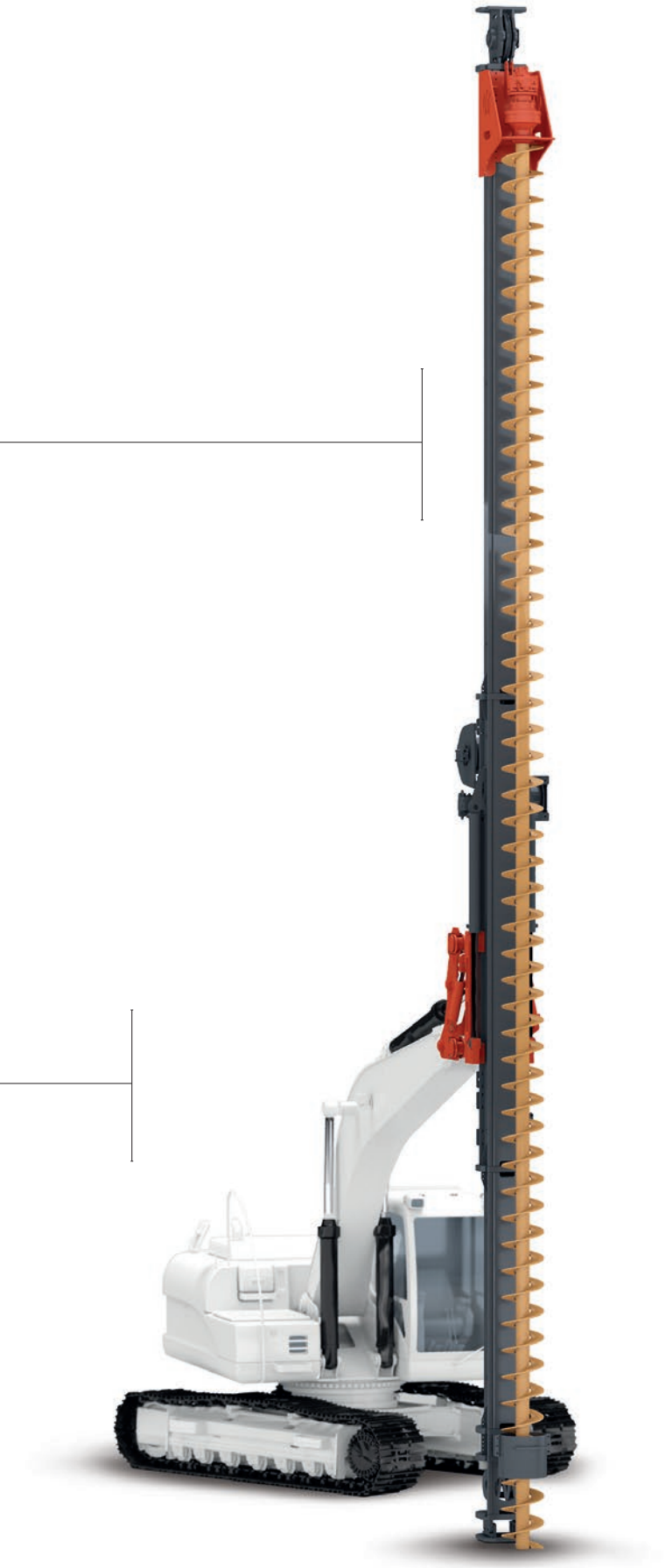
Tool mounting bracket for fast and easy change of tooling.

Piling hammers
MOVAX DH-15 or DH-25
0-15/0-25 kNm
0-100 blows/min
0-1,2 m drop height

Vibratory pile driver
MOVAX TG-90
544 kN | 9,6kgm
2300 1/s | 11,5/16 mm
MOVAX TG-120
718 kN | 12,6 kgm
2300 1/s | 14,5/20 mm

Pre-auger
PD-50
50 kNm
0-40 rpm

CFA Rotary drive
RHP-5
Mounted directly onto the leader
50 kNm
0-50 rpm



The MOVAX MPL-300 is always customised to meet customer-specific requirements. Technical parameters can be tailored and accessories are available for various tooling and applications.

Main winch 57 kN, available with 5,7 or 17,1 ton lifting force (1x or 3x winch line pull).

Available with optional 2,5 ton service winch for lifting piles, augers and reinforcements.

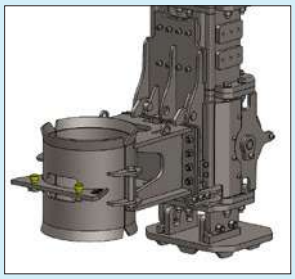
Mounted directly onto excavator, stick or onto main boom *(depending on excavator class).*

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 LEADER

MPL-200

FEATURES

- Excavator stick-, boom- or chassis-mounted Multi-tool piling leader, designed especially for micropiling and solar piling applications. Mounting option depends upon tooling and excavator class
- Tooling alternatives include vibratory pile driver, hydraulic hammer and rotary drives for pre-augering
- Suitable for a wide range of piling applications, including pre-augering and driven piles (sheet piles, tubular steel piles, H-beams and precast concrete piles) Effective pile length six (6) meters (for driven piles per single pile section)
- Multi-tool piling leader and tooling designed to work on a standard excavator with normal auxiliary hydraulics. All leader related hydraulics are integrated onto the leader itself. Tooling can be changed easily and fast and the Multi-tool piling leader can also easily, fast and flexibly be attached and detached enabling other usage of the excavator
- The Multi-tool piling leader and the tooling is controlled with the MOVAX Control System mControl+ Pro

TECHNICAL DATA

Multi-tool piling leader, MPL-200

Model		MPL-200
Weight (excl. adapter & tooling)	kg	1800
Height	m	7,8
Excavator class	t	8–30

Vibratory pile driver

Model		TG-15
Frequency	Hz	50
Eccentric moment	kgm	1,6
Centrifugal force, max	kN	150
Excavator class, min	t	
Chassis mounted*		8
Boom mounted		16
Stick mounted		23
Suitable		
Sheet piles	size	U and Z piles / 6 m
H-beams	size	up to H200 / 6 m
Tubular steel piles	size	up to Ø 220 mm / 6 m

Rotary drive for pre-augering

Model		PD-6
Rotation speed	rpm	20-43
Torque		12
Excavator class	t	
Chassis mounted*		8
Boom mounted		16
Stick mounted		23

Hydraulic hammers

Model		IH-1200	IH-2500	IH-3400
Blows per minute	1/min	570-1180	460-940	400-870
Energy	Nm	1200	2500	3400
Excavator class , min	t			
- Chassis mounted*		8	16	18
- Boom mounted		16	20	20
- Stick mounted		23	26	30
Suitable piles				
Sheet piles	size	U and Z piles / 6 m		
H-beams	size	up to H200 / 6 m		
Tubular steel piles	size	up to Ø 220 mm / 6 m		

NOTE!

**excavator class is limited by hydraulic power rather than excavator lifting capacity*

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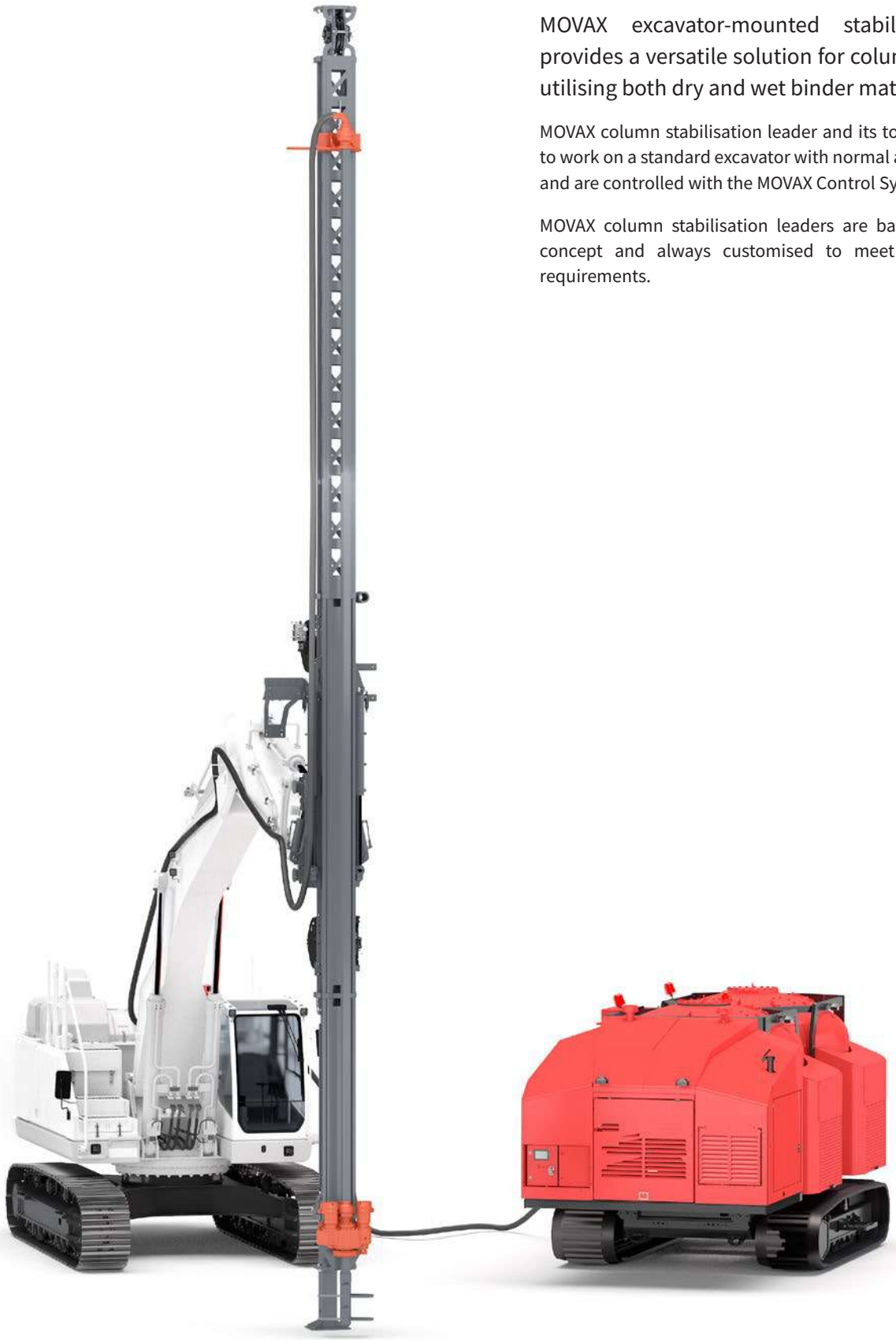
TECHNICAL SPECIFICATION

COLUMN STABILISATION LEADER



MOVAX excavator-mounted stabilisation leader provides a versatile solution for column stabilisation utilising both dry and wet 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 column stabilisation leaders are based on a modular concept and always customised to meet customer-specific requirements.

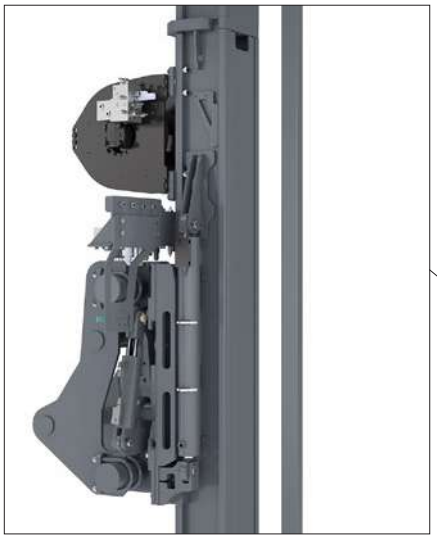
COLUMN STABILISATION LEADER

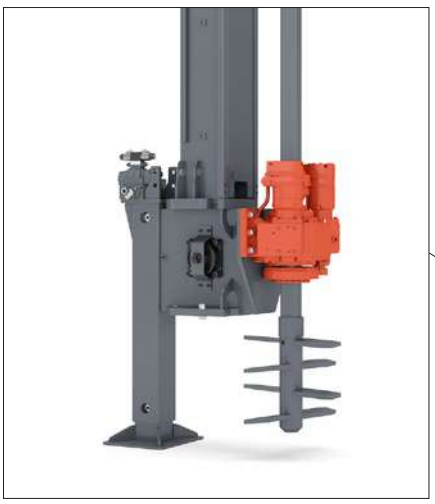
MSL-300

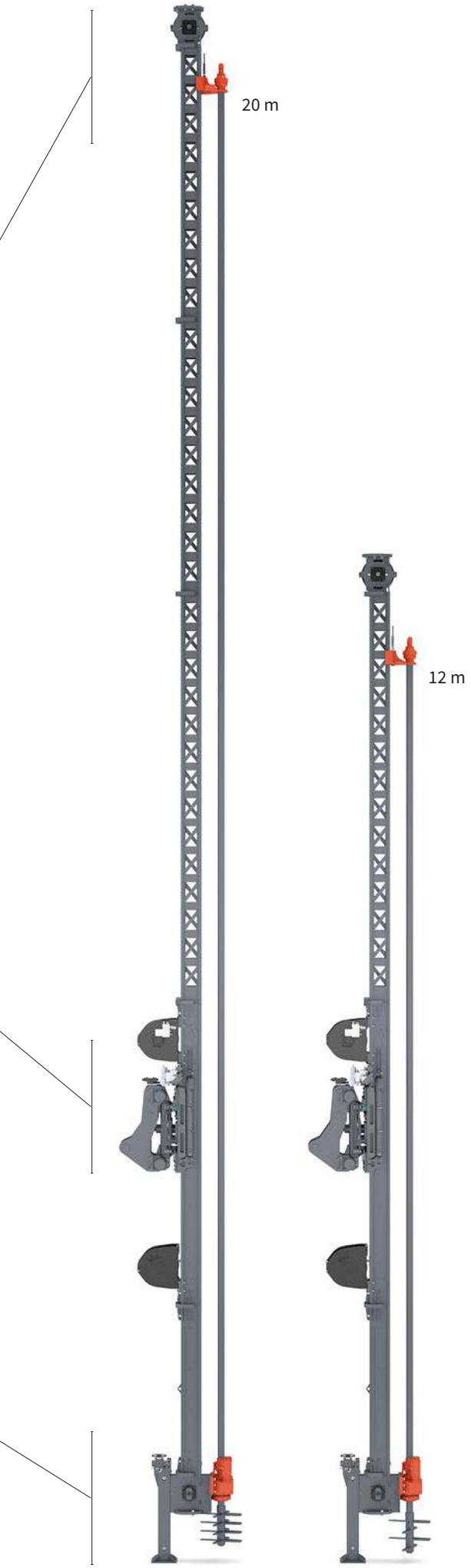
FEATURES

- Excavator mounted stabilisation leader
- The leader and its tooling are designed to work on a standard excavator with normal auxiliary hydraulics; all required hydraulics is integrated into the leader itself
- Maximum depth 20 m; due to the modular design the leader can be shortened to 12 or 16 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

NOTE! depending on carrier 22-25 m depth possible







TECHNICAL DATA

Column stabilisation leader

Model		MSL-300
Column depth	m	20
Column diameter	mm	500-800
Weight (w/o adapter)	kg	6500
Height	m	23
Tilt angle	o	+/- 8
Winches		
· number	pcs	2
· pull down/extraction force	kN	57/57
· speed	m/min	0–30

NOTE! depending on carrier 22-25 m depth possible

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
inner diameter	mm	34
Support pipe		
length	m	21,3
size / wall thickness	mm	100 x 100 mm square/8 mm

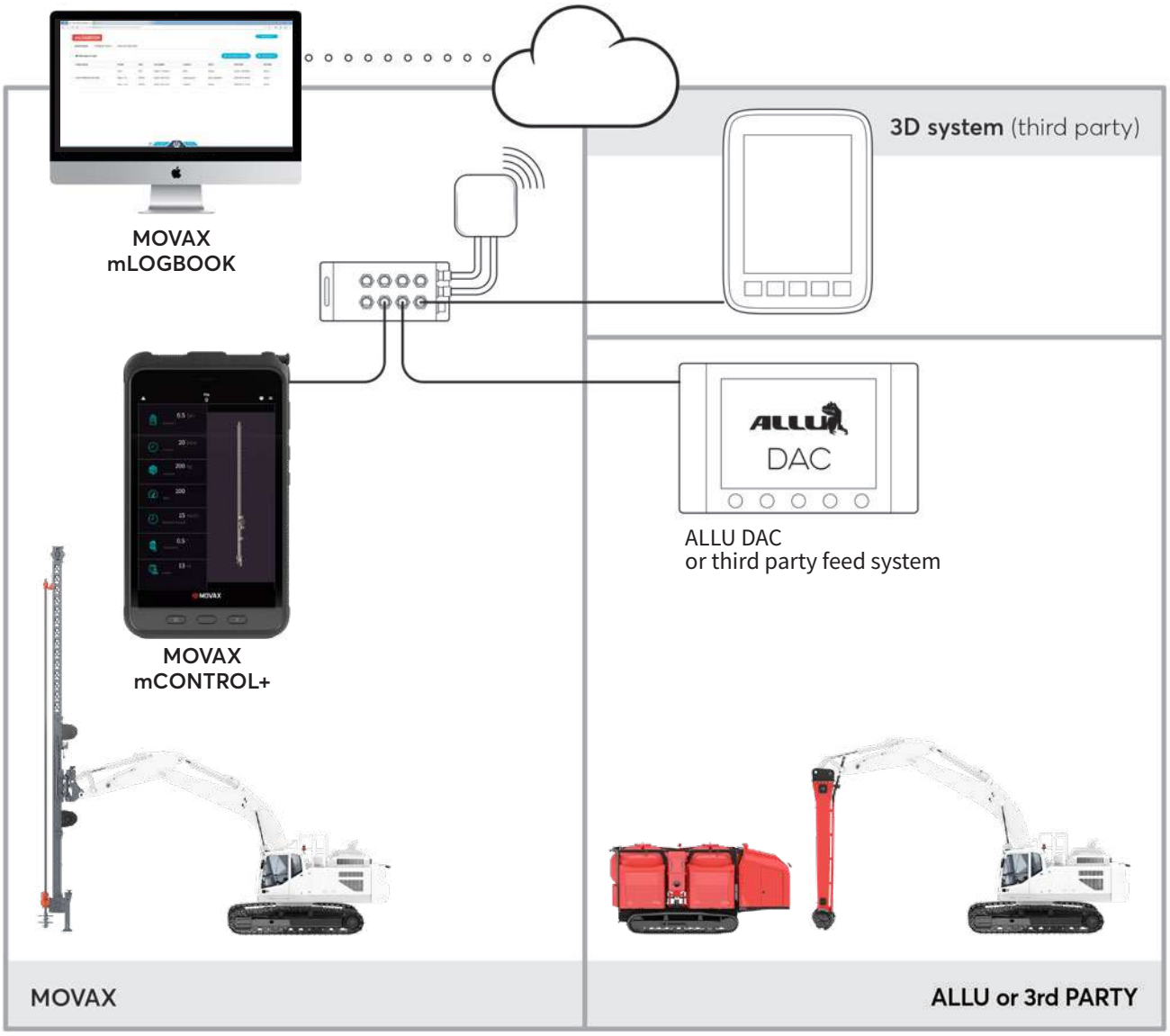
COLUMN STABILISATION LEADER

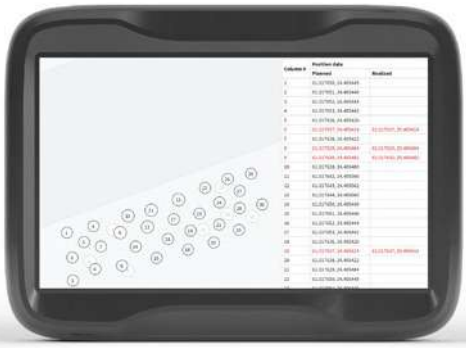
CONTROL & INFORMATION MANAGEMENT

The Column stabilisation process is controlled and the work is monitored using the MOVAX mControl+ PRO control system. The mControl+ PRO is designed to comminicate with external, third party 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 third party feed system
- Third party 3D system connectivity





PLANNING

The stabilisation drawings and plans are accessed through the 3rd party 3D system. From the display the operator can see the planned location of the mass stabilisation fields or the stabilisation columns.

MONITORING

The work flow is monitored utilizing MOVAX mCONTROL+ and the 3rd Party 3D-system. The location and positioning data is monitored utilizing 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 operator can view the result of the stabilisation work 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 MOVAX mCONTROL+ system sends the data to a cloud-based server (mCLOUD) where all the information is stored. The user can access the information and ready made reports through a password protected web-based interface.

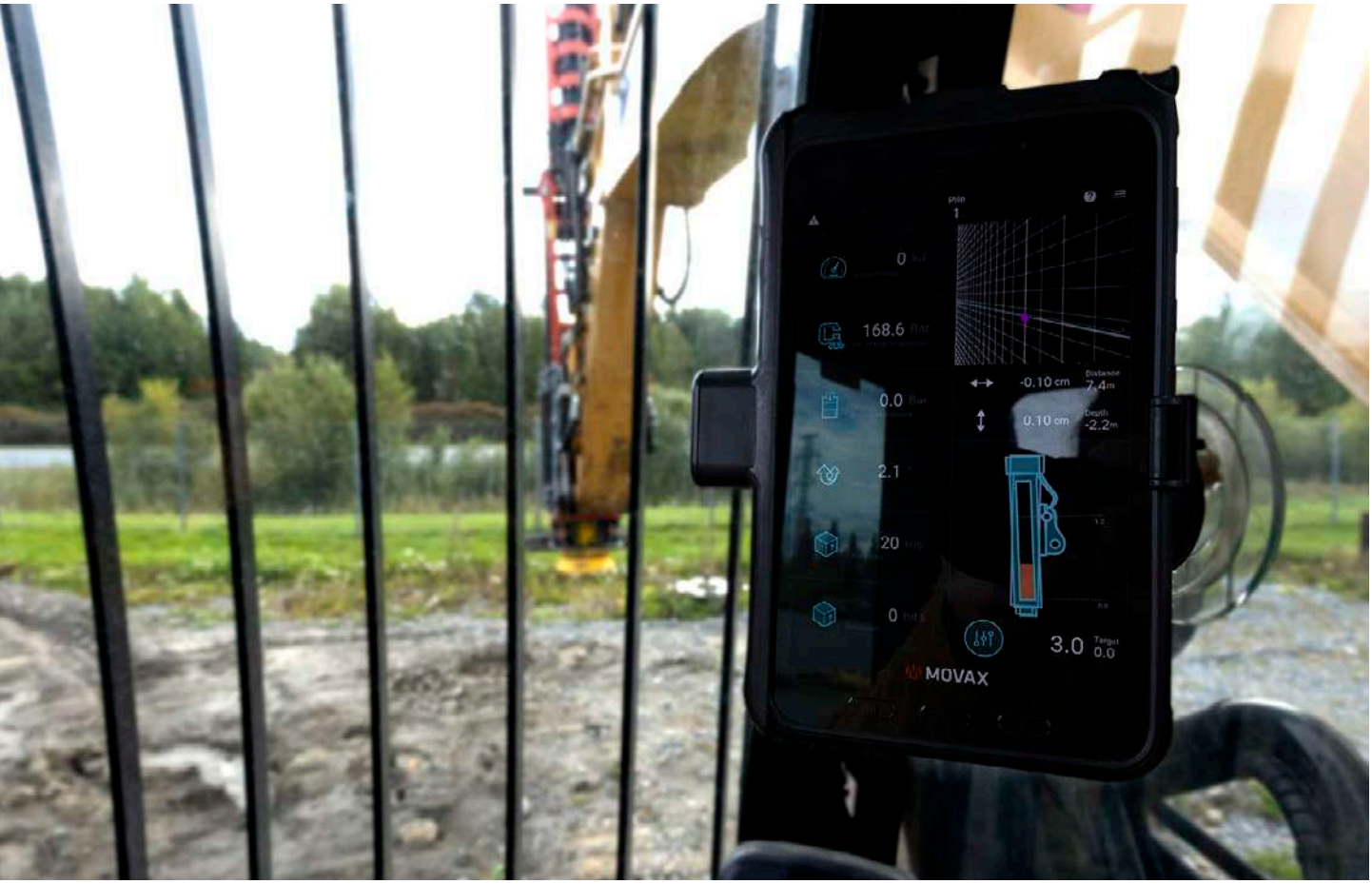
In addition to ready made reports the MOVAX mLogbook-reporting system also includes efficient tools for printing (pdf-format) and to transfer the data to for instance Microsoft Excel.

PRODUCTS & SERVICES

MOVAX CONTROL SYSTEM

The MOVAX Control System, **mControl+**, links the carrier (excavator, railroader or equal) with the MOVAX piling equipment and customised solutions. The system controls the auxiliary hydraulics of the excavator which in turn is utilised to control the MOVAX piling equipment, the MOVAX multi-tool piling leaders including the tooling connected to the leader and the MOVAX column stabilisation leader.

The excavator's auxiliary hydraulics is controlled by the standard auxiliary pilot circuit of the excavator which is controlled by mControl+. The mControl+ control system utilizes inclination and pressure sensors to monitor the operation and the pile driving and stabilisation processes - thus effectively and efficiently assisting the operator in performing all the required control functions and tasks.

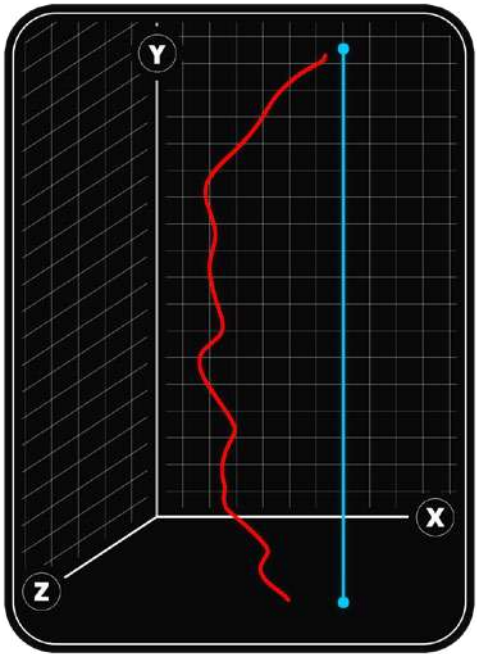


Control system for

MOVAX PILING EQUIPMENT & CUSTOMISED SOLUTIONS

FEATURES

- **Advanced MOVAX control system available in two different versions:**
  - Automatic control system with autoT™ tip-control, **mControl+ PRO**
  - Manual control system, **mControl+ LITE**
- **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
- **Ergonomic and informative user interface**
  - Easy-to-read graphical symbols for different functions
  - User-friendly menus for calibration and performance optimisation
  - Colour display
  - All functions are effortlessly controlled using switches and thumb wheels on the control grips
- **System diagnostics - available directly on the mControl+ display**
  - Available (optional) with connectivity to MOVAX Information Management System, mFleetManagement and mLogbook



NOTE!

mLogbook requires mControl+ PRO.

The pilot circuit control is dependent on the excavator brand & model (year). For excavators with the CAN interface currently available, please contact Movax Oy.

mControl+ PRO is compatible with all MOVAX piling equipment and customized solutions, including MOVAX multi-tool piling leaders and MOVAX column stabilisation leaders.

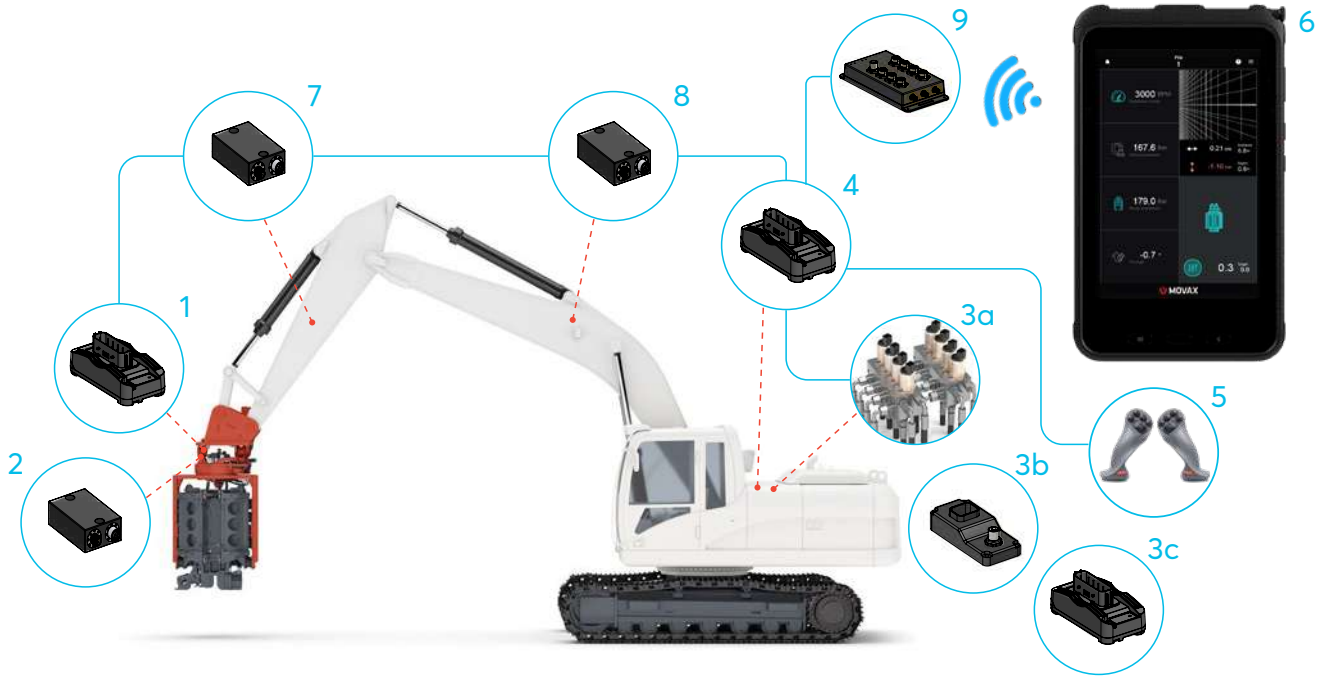
mControl+ LITE is utilised to control the MOVAX piling equipment. mControl+ LITE can be upgraded to mControl+ Pro.

MOVAX CONTROL SYSTEM

mControl+ PRO

mControl+ PRO is a state-of-the-art automatic control system based on advanced 'tip'-control (autoT™)computing technology and angle sensors mounted onto the excavator's boom and stick which utilises either proportional pilot valves, a PWM controller or a CAN pilot circuit/interface for the control of the excavator's auxiliary hydraulics.

The autoT™-feature of the mControl+ PRO effectively assists the operator in achieving a faster and more efficient, high quality piling installation. The mControl+ PRO also provides valuable information which further assists the operator in achieving a higher production rate and quality. The information also ensures the highest possible availability by providing information protecting the MOVAX piling equipment.



1. MOVAX module (MXM) / 2. MOVAX angle sensor (MXS) / 3. Pilot circuit control a) hydraulic valve block, b) PWM control, c) CAN interface / 4. Excavator module (EXM) / 5. Control grips / 6. mControl+ PRO display / 7. Stick angle sensor / 8. Boom angle sensor. *(In case of two-piece boom one additional sensor is required.)* / 9. MIMS module

The mControl+ PRO is installed onto the excavator without making any changes to the original functionality of the excavator whatsoever. mControl+ PRO is utilised to control all MOVAX piling equipment, multi-tool piling leaders and column stabilisation leaders.

FEATURES

Display

mControl+ PRO is equipped with an independent 8” Android tablet that is used as the control system display. The ergonomic user interface is utilised to monitor and control the MOVAX piling equipment and customised solutions. The display is also utilised, for instance, to input user data related to the pile set criterion (mLogbook) and the angle for raked piles when using autoT™.

Control grips

The ergonomic mControl+ PRO control grips are equipped with multiple rollers and buttons which allow complete operation with a single grip. The control grips include extra buttons and rollers for accommodating functions from the excavator’s original handles.

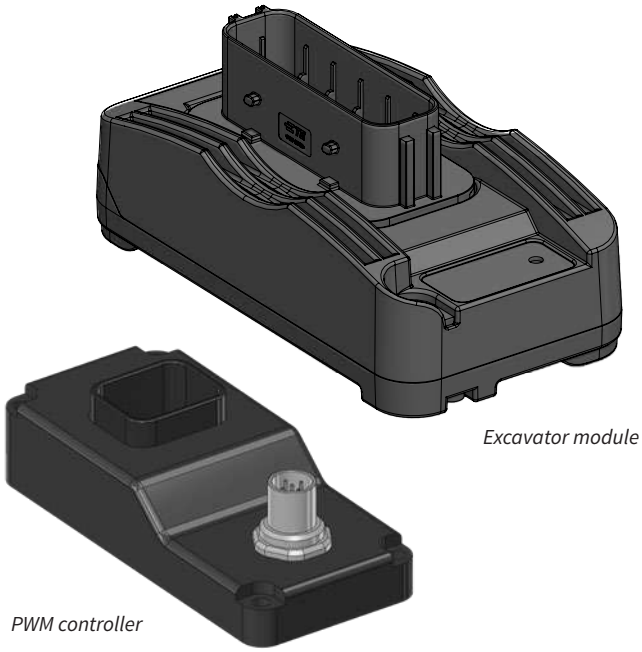
Control modules

mControl+ PRO is equipped with two electronic control modules, one Excavator module (EXM) and MOVAX module (MXM) The excavator cab-mounted EXM controls the excavator's auxiliary hydraulics with either proportional valves, a PWM controller or a CAN bus control circuit. The type of pilot circuit control is dependent on the excavator brand and model. The MXM, installed and delivered with the MOVAX equipment, controls the hydraulic valves on the MOVAX piling equipment, Multi-tool piling leaders and Column stabilisation leaders, and monitors the operation with angle- and pressure sensors.

NOTE!

The MOVAX module is always supplied with the MOVAX piling equipment, Multi-tool piling leaders or Column stabilisation leaders.

The MOVAX module is factory installed onto the MOVAX equipment.



Excavator module

PWM controller

Angle sensors

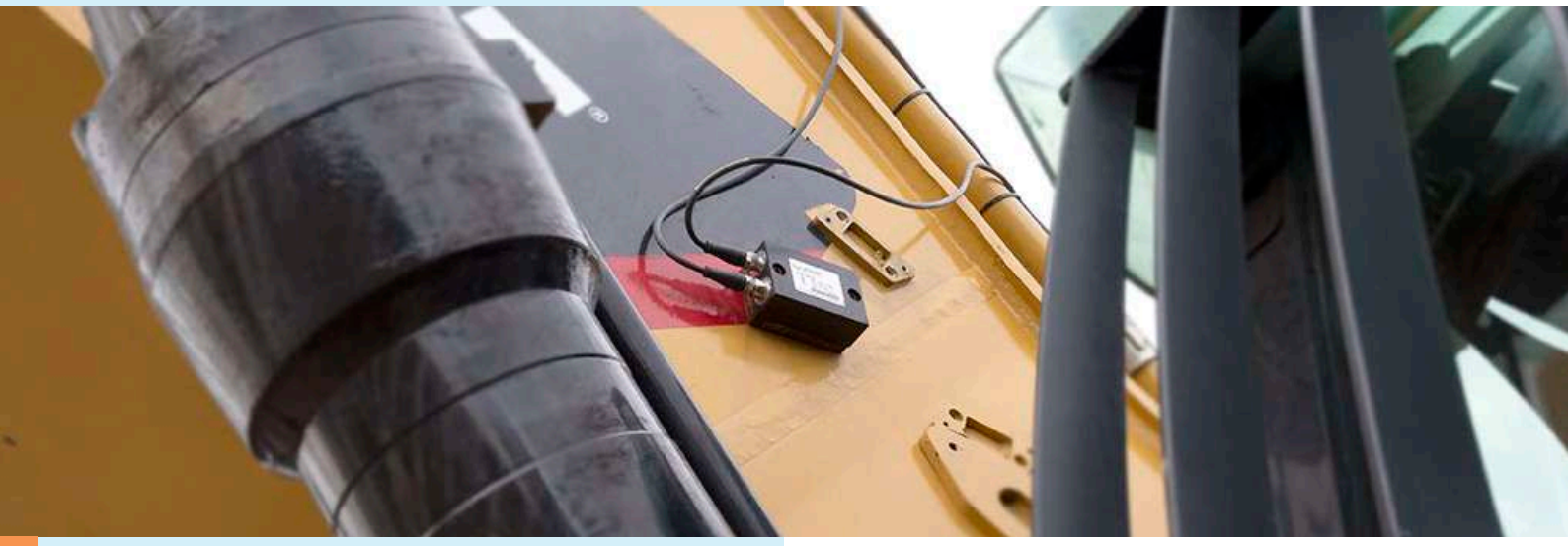
mControl+ PRO system provides highly accurate angle and distance information under extreme vibration conditions. The measurement is based on next-gen 360° angle sensors. These sensors are also equipped with gyroscope to provide maximal accuracy.

OPTIONS

mControl+ PRO is available with the following options:

Information	Additional sensor(s) for excavators with a two-piece boom
	Software licenses for mFleetManagement and mLogbook
Control grips	Ergonomic control grips with 3-rollers

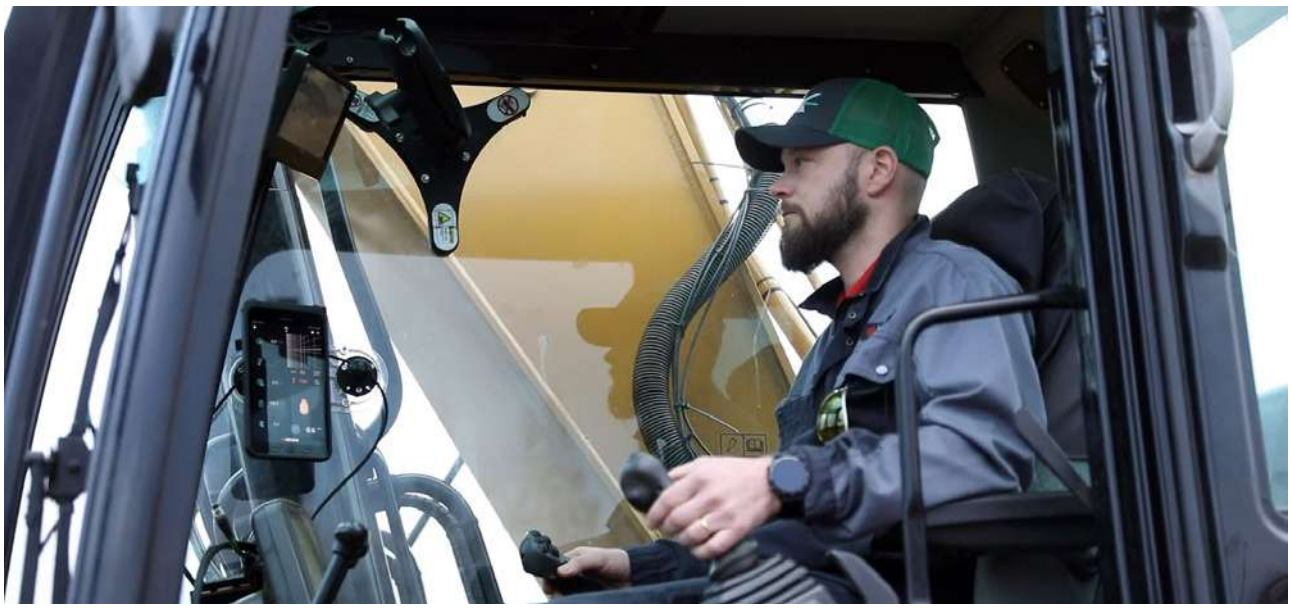
Update kits are available to connect existing MOVAX side grip pile drivers and piling hammers to mControl+ PRO.

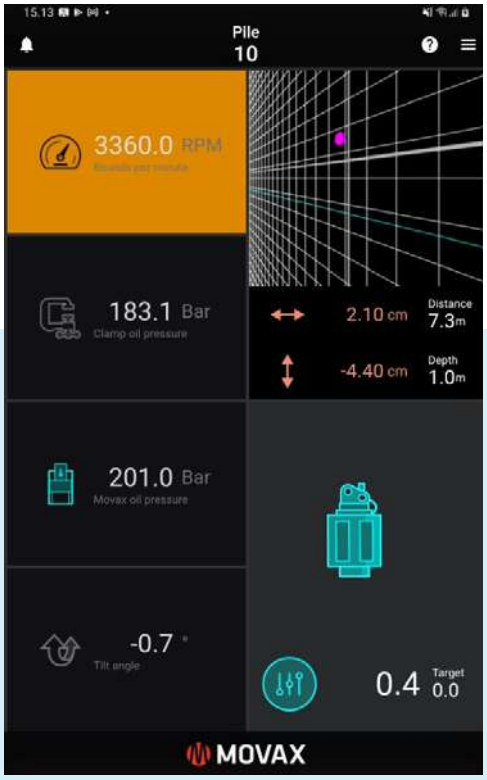


INFORMATION

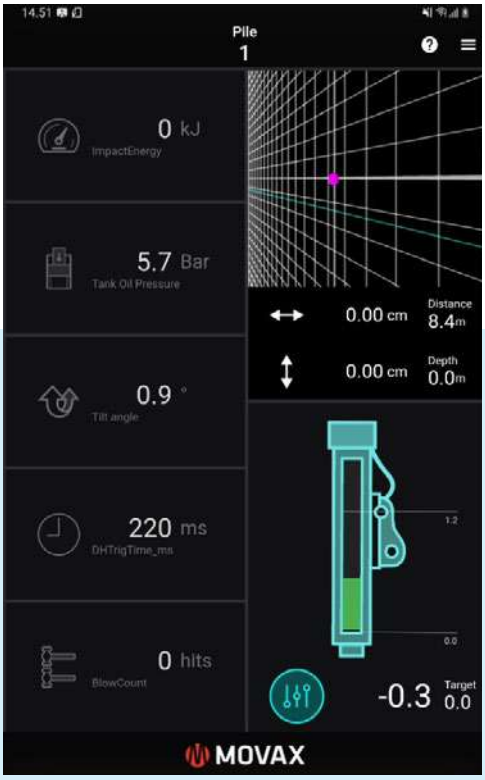
mControl+ PRO provides comprehensive and essential information about the operation of the MOVAX piling equipment, Multi-tool piling leaders and Column stabilisation leaders and the piling process allowing the operator to monitor and optimize the operation for the best possible overall performance.

mControl+ PRO includes the hardware required for the connectivity to the MOVAX Information Management System and the necessary sensors for a mono-boom excavator - also as required for the MOVAX mLogbook documentation and reporting tool. The same sensors are utilised to for instance provide information about the 'refusal'.





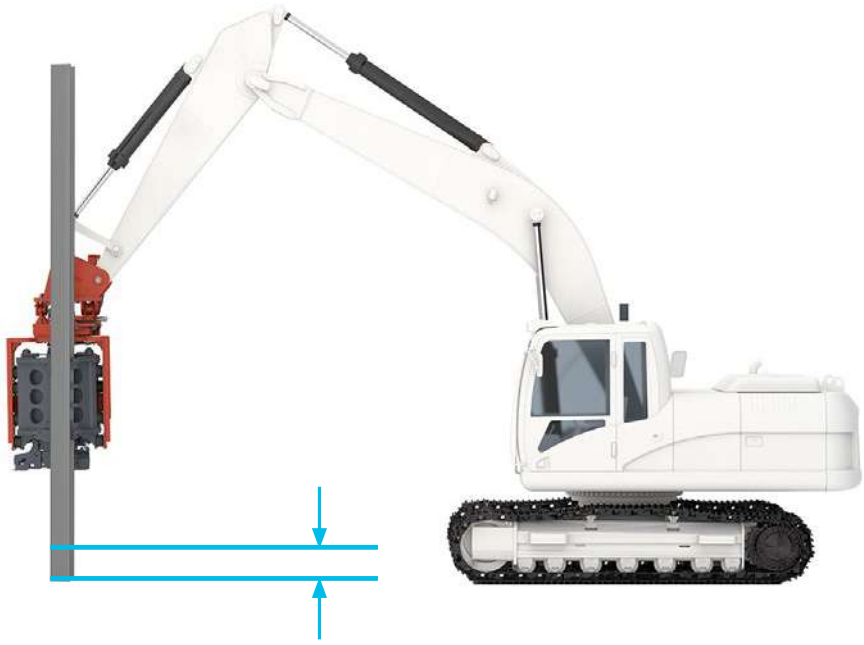
mControl+ PRO, main screen with SG, overvibration warning



mControl+ PRO, main screen with DH piling hammer

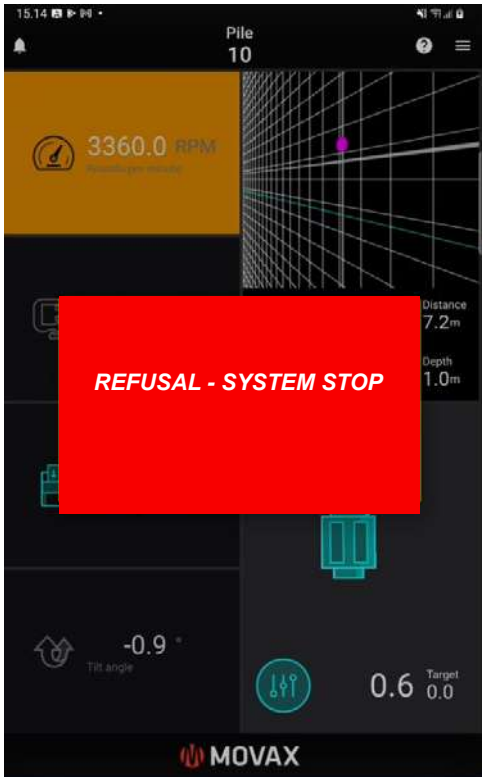
Refusal

mControl+ PRO is designed to secure the maximum availability of the MOVAX side grip vibratory pile drivers and piling hammers. The mControl+ PRO REFUSAL™ -feature assists the operator by displaying a clear and visible warning when the refusal is reached during the pile driving process thus protecting the MOVAX piling equipment.



< 250 mm/4min OR < 1 mm/s (SG)
< 5mm with 30 blows at full stroke (DH)

mControl+ PRO, main screen with SG, refusal warning



mControl+ PRO, main screen with refusal system stop

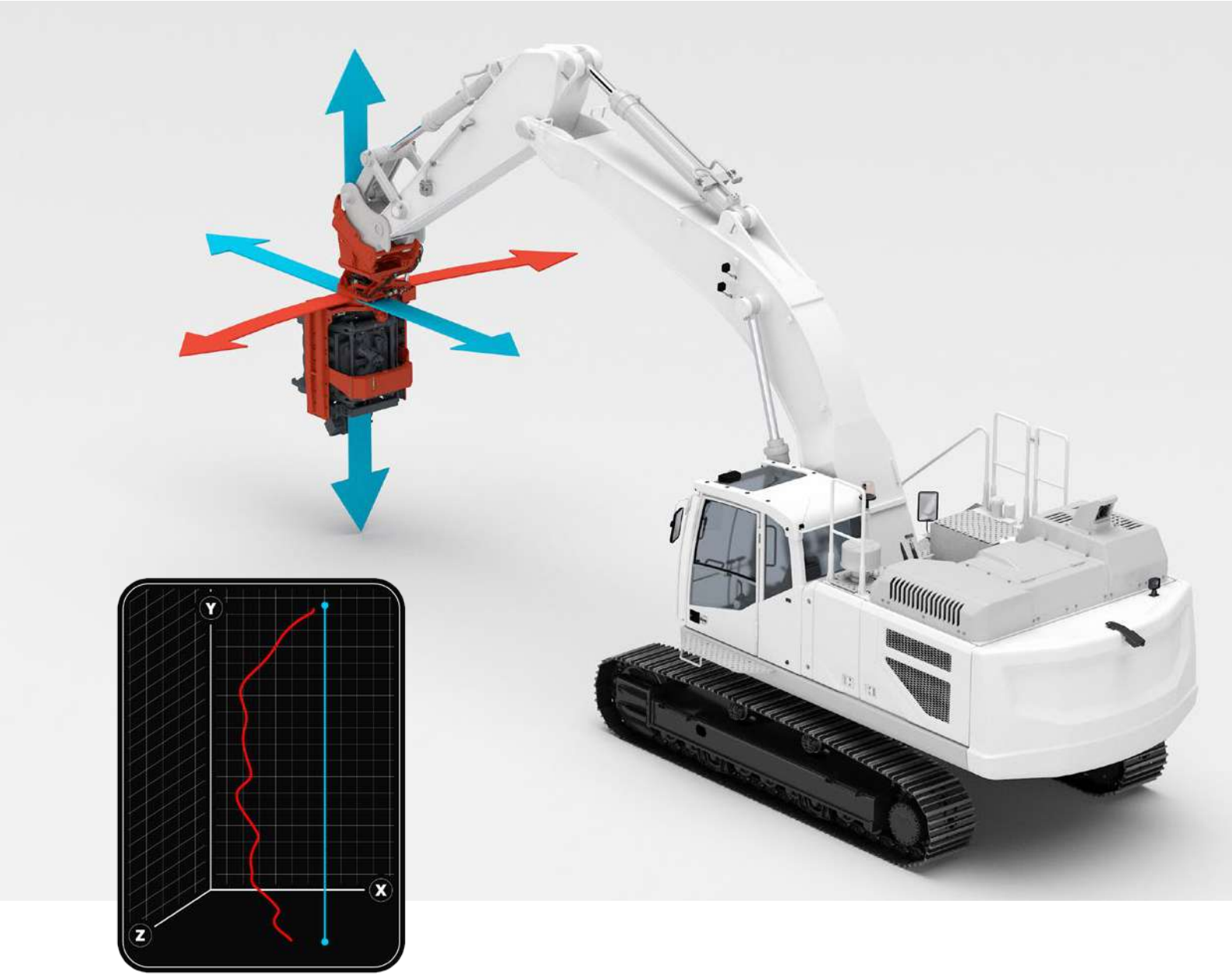
AUTOMATIC CONTROL - autoT™

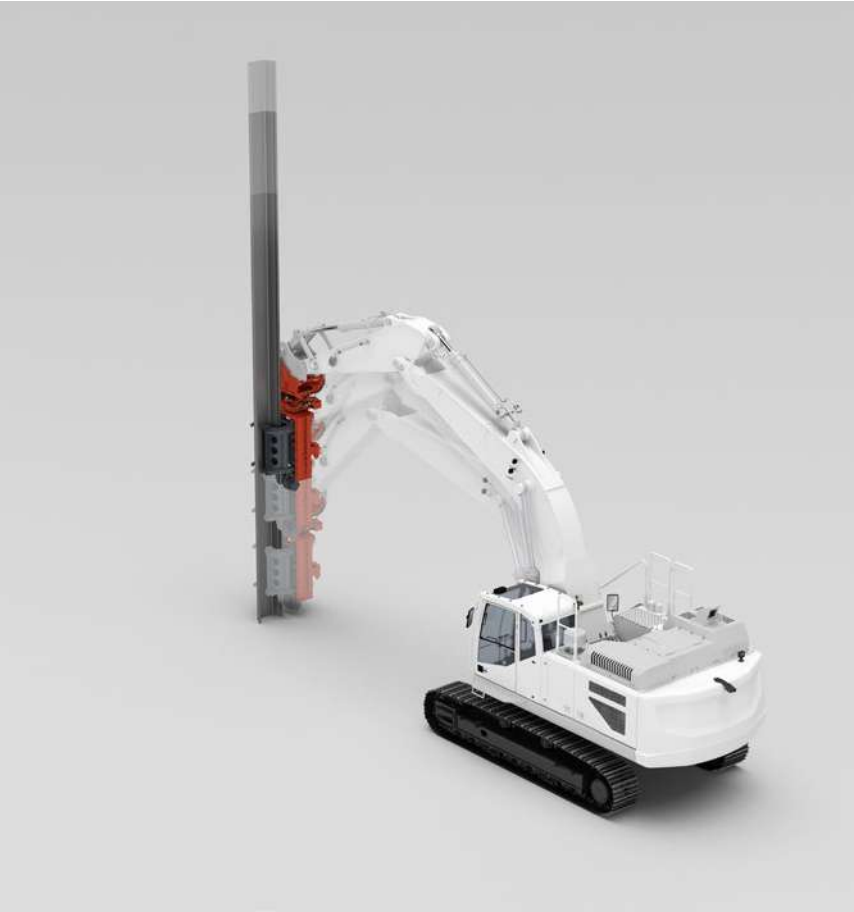
mControl+ PRO is equipped with the advanced, state-of the art autoT™ control feature assisting the operator in achieving a faster and more precise piling process and ultimately resulting in higher production rates and increased quality of installation. autoT™ is available for MOVAX side grip pile drivers and piling hammers.

MOVAX mControl+ PRO autoT™-tip control uses the power of computing, pre-programming and sensors in such a manner that a single action by the operator affects multiple movements at the same time. The basic functionality of the autoT™ makes the MOVAX side grip pile driver or MOVAX piling hammer travel in a straight line by taking over demanding parts of the excavator's boom control.

The mControl+ PRO tip autoT™-control feature, which makes the MOVAX side grip pile driver or MOVAX piling hammer travel vertically in a straight line, can principally be divided into two parts: Vertical Tip Control [Y-AXIS] and Horizontal Tip Control [X-AXIS].

The autoT™ functionality itself is based on angle sensors mounted onto the carrier's boom and stick, and the MOVAX side grip pile driver or piling hammer, and proportional pilot control of the excavator's auxiliary hydraulics.





Vertical movement with a stationary excavator.

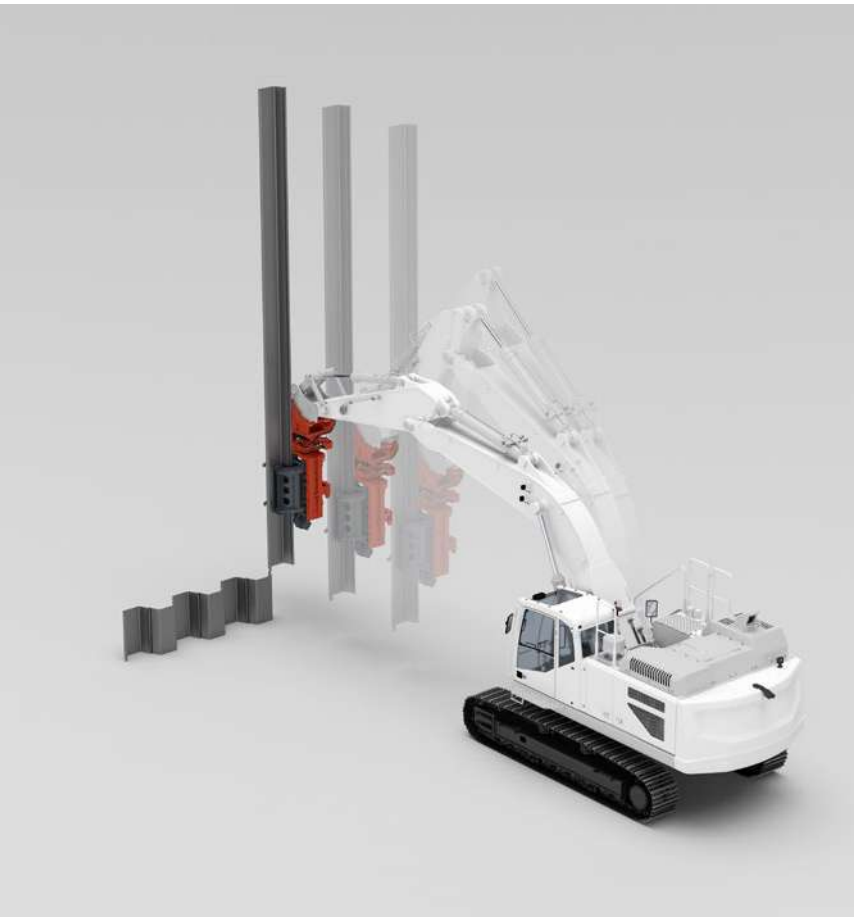
autoT™ - automatic control, Y-AXIS

The operator can pilot the boom assembly of the excavator in both directions, up and down, with a single control grip roller command – with a horizontally constant distance position, and 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 autoT™ -feature is used when driving or extracting piles with the MOVAX Side grip pile driver, or to change the position of the MOVAX side grip pile driver along the pile for the purpose of re-gripping the pile.



Horizontal movement with a stationary excavator.

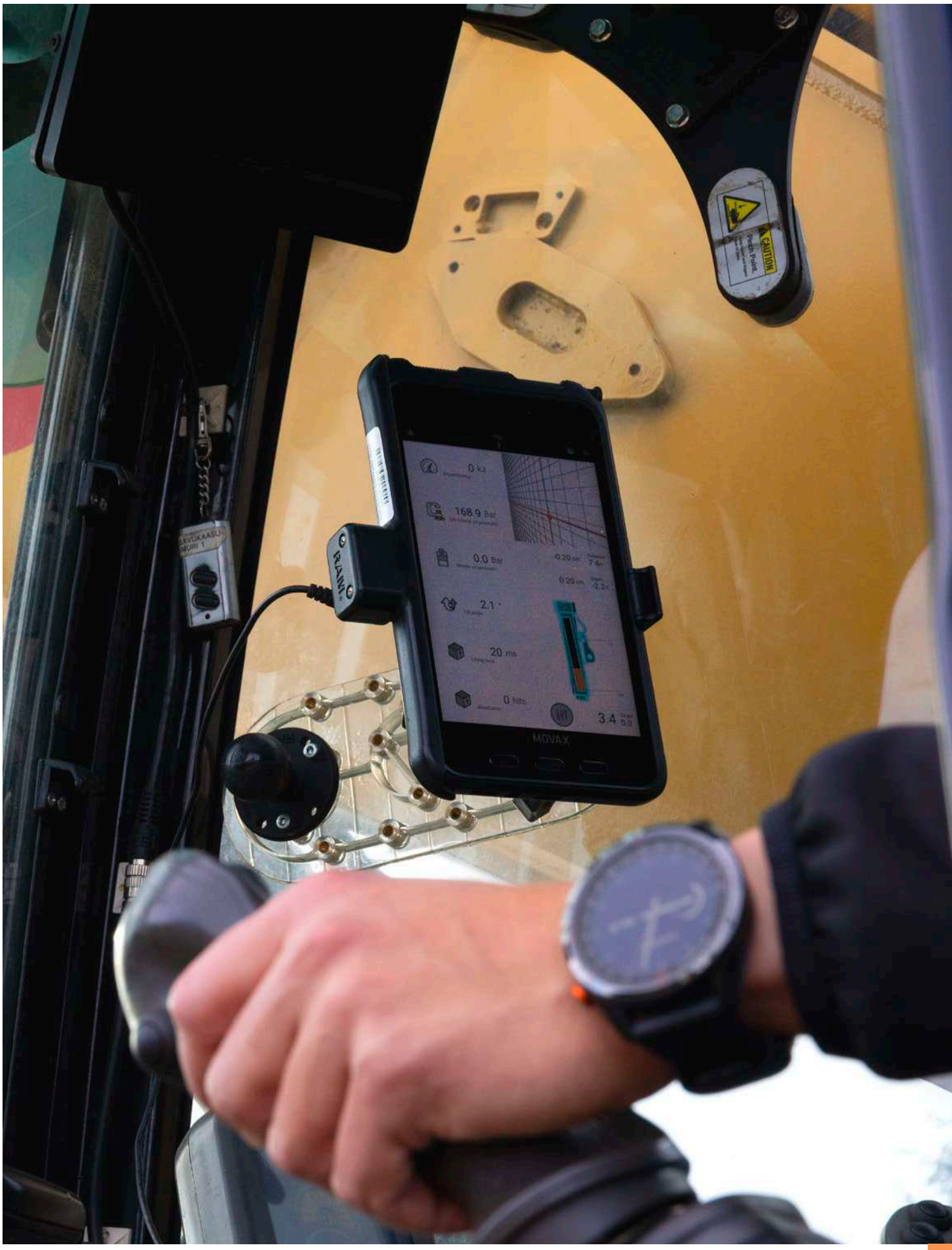
autoT™ - automatic control, X-AXIS

The operator can pilot the boom assembly of the excavator in both directions, forward and backwards, with a single control grip roller command – with a horizontally constant distance position, and 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 proportional roller when the movement occurs.

Highly accurate calibrations can be done in mControl+Pro application, based on operator preference.

The autoT™ -feature is used when accurate and steady horizontal movement is required – a particularly good example is sheet pile pitching: Guiding the pile into the lock insert is faster when the MOVAX side grip pile driver and the pile are in zero level and the MOVAX side grip pile driver motion only happens in the X-axis of the coordinate system.


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

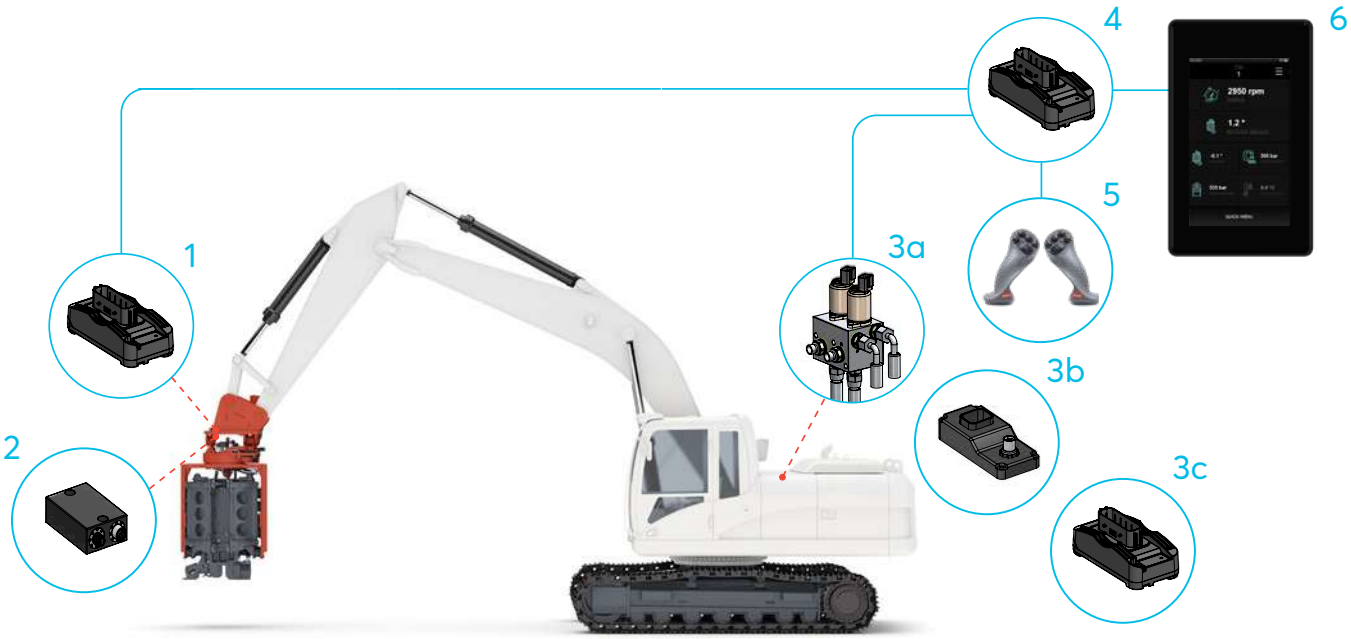
MOVAX CONTROL SYSTEM

mControl+ LITE

The **mControl+ LITE** is a state-of-the-art control system which utilises either proportional pilot valves, a PWM controller or a CAN pilot circuit/interface for the control of the excavator's auxiliary hydraulics.

The mControl+ LITE is installed onto the excavator without making any changes to the original functionality of the excavator whatsoever. mControl+ LITE is utilised to control all MOVAX piling equipment, including side grip pile drivers, piling hammers, piling drills and manipulators.

mControl+ LITE provides basic information about the operation thus assisting the operator in the piling process.



1. MOVAX module (MXM) / 2. MOVAX angle sensor (MXS) / 3. Pilot circuit control a) hydraulic valve block, b) PWM control c) CAN interface / 4. Excavator module (EXM) / 5. Control grips / 6. mControl+ LITE display

The mControl+ LITE is installed onto the excavator without making any changes to the original functionality of the excavator whatsoever. mControl+ LITE is utilised to control all MOVAX piling equipment, including side grip pile drivers, piling hammers, piling drills and manipulators.

FEATURES

Display

The mControl+ LITE is equipped with an independent 5” display.

Control grips

The mControl+ LITE is equipped with ergonomic control grips with multiple rollers and buttons which allow complete operation with a single grip. The control grips include extra buttons and rollers for accommodating functions from the excavator’s original handles.

Control modules

mControl+ LITE is equipped with two electronic control modules, one Excavator module (EXM) and one MOVAX module (MXM). The excavator cab-mounted EXM controls the excavator’s auxiliary hydraulics with either proportional valves, a PWM controller or a CAN bus control circuit. The type of pilot circuit control is dependent on the excavator brand and model. The MXM, installed and delivered with the MOVAX equipment, controls the hydraulic valves on the MOVAX piling equipment, Multi-tool piling leaders and Column stabilisation leaders, and monitors the operation with angle- and pressure sensors.

NOTE!

MOVAX piling equipment are always supplied with the MOVAX module factory installed.

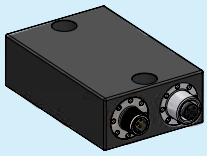
OPTIONS

mControl+ LITE is available with the following options:

Information	Software licenses for mFleetManagement
Control grips	Ergonomic control grips with 3-rollers
autoT™ -automatic control	Upgrade kit for upgrading the mControl+ LITE to mControl+ PRO

Update kits are available to connect existing MOVAX side grip pile drivers and piling hammers to mControl+ LITE.

Control grips



Angle sensor

PWM module

MOVAX INFORMATION MANAGEMENT SYSTEM (MIMS)

The MOVAX Information Management System (MIMS) provides essential information about the piling process and the pile installation, and about the MOVAX piling equipment itself. The information is intended for maintenance personnel and for the owners, operators and engineers designing and overseeing a piling or foundation project.

The goal is increase the availability of the MOVAX piling equipment and to improve the quality of the piling project and to save costs in reporting and testing.

The **MIMS hardware (HW)** which is included with mControl+ PRO and optional in case of mControl+ LITE is provided for data collection, initial storage and transfer. The MIMS HW is connected to mControl+ from which the data is collected automatically.

MIMS data suites (SW) provide detailed real-time information, documentation and reports which are accessed through a web-based user interface

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.

MIMS HARDWARE

DATA COLLECTION AND -TRANSFER

The MIMS hardware (HW), which is connected to the MOVAX Control System and installed onto the excavator (or other carrier) is utilised for automatic data collection and data transfer. The same HW is utilised for all MIMS data suites (SW), The MIMS HW includes a fully integrated 3G/GPS-system providing the remote connection as well as the general location of the excavator and the MOVAX piling equipment.

The MIMS module will automatically recognize the specific MOVAX piling equipment (SG vibratory pile driver, DH piling hammer, MPL Multi-tool piling leader etc.) connected to the excavator and collect the data accordingly.

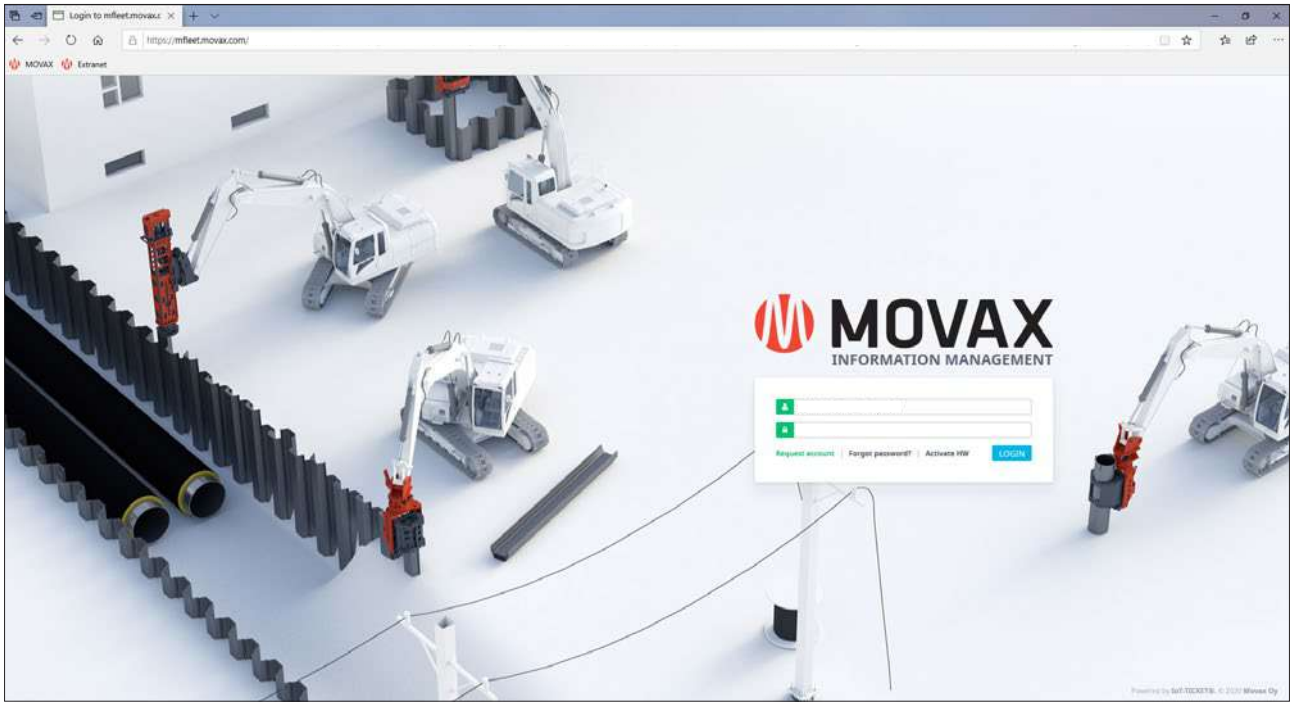
MOVAX Information Management System is compatible with third-party global positioning systems such as Novatron/MOBA, Trimble and Leica. When connected to a third party global positioning system it is possible to obtain also the exact location of the pile to be driven. In addition, independent global positioning sensors (RTK GNSS) compatible with the MOVAX Information Management System are also available for pile specific precise GPS information.

The MIMS HW includes the following;

- MOVAX MIMS module (MRM) with GPS and 3G- antennas
- Cabling, connectors
- Mounting kit

DATA STORAGE AND USER INTERFACE

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.



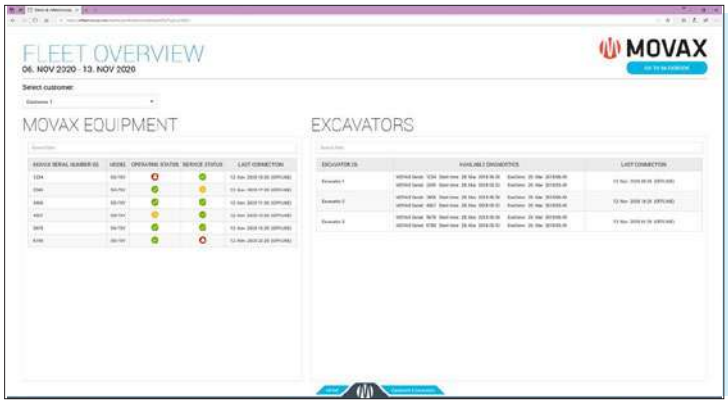
MOVAX Information Management System 'log-in'

mFleet Management

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.

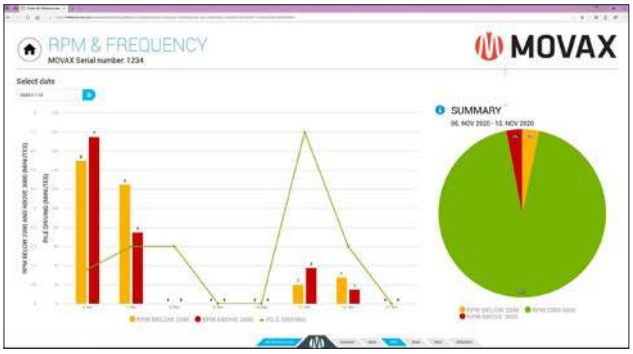
The MOVAX piling equipment to be monitored or analysed in more detail is selected from the 'Fleet Overview'.

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.



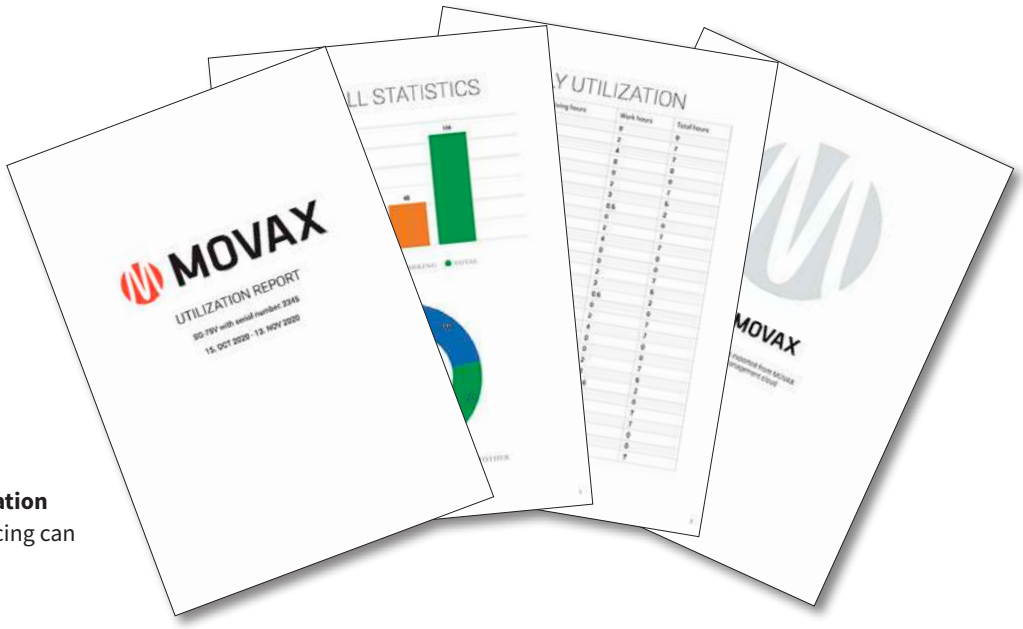
SG rpm/frequency

SG utilization

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	RPM	Working pressure
Working pressure	Refusal*	Back pressure	Working pressure	Back pressure
Back pressure	Service checks	Drain pressure	Back pressure	Service checks
Drain pressure		Service checks	Drain pressure	
Clamp pressure			Service checks	
Refusal*				
Service checks				

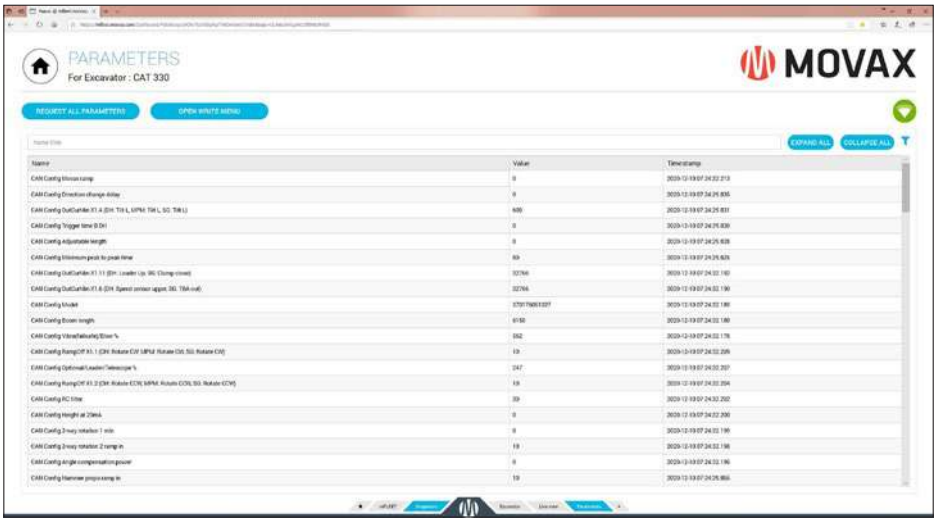
**requires mControl+ PRO*

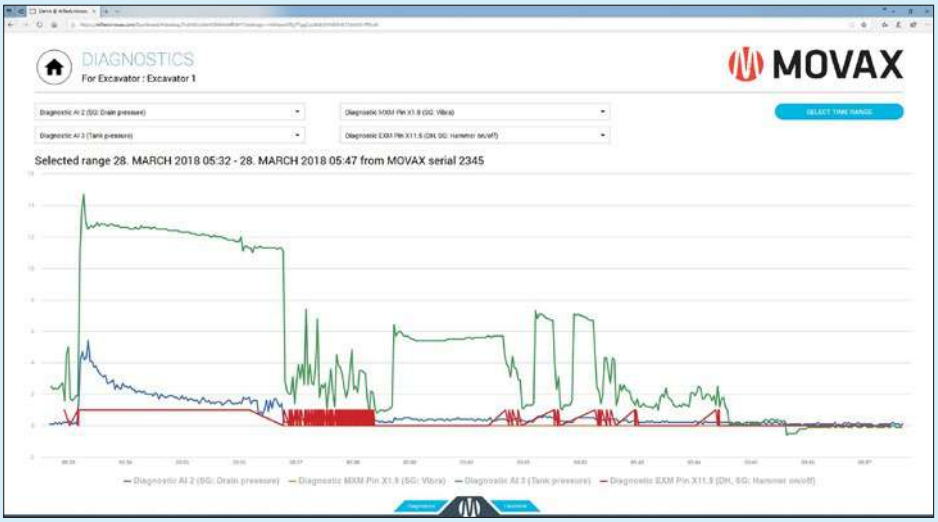


Based on for instance the **'Utilization hours'** a pdf-document for invoicing can be generated.

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.





mLOGBOOK

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

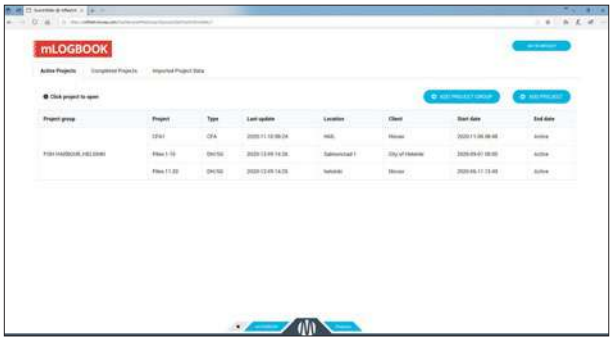
The piling information is collected by the MOVAX Control System and stored in the MOVAX Control System's excavator module. To report the piling works the operator only has to input the pile number, the system will take care of the rest. Data concerning site and pile information is added by the user (engineer 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 Trmble, 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,

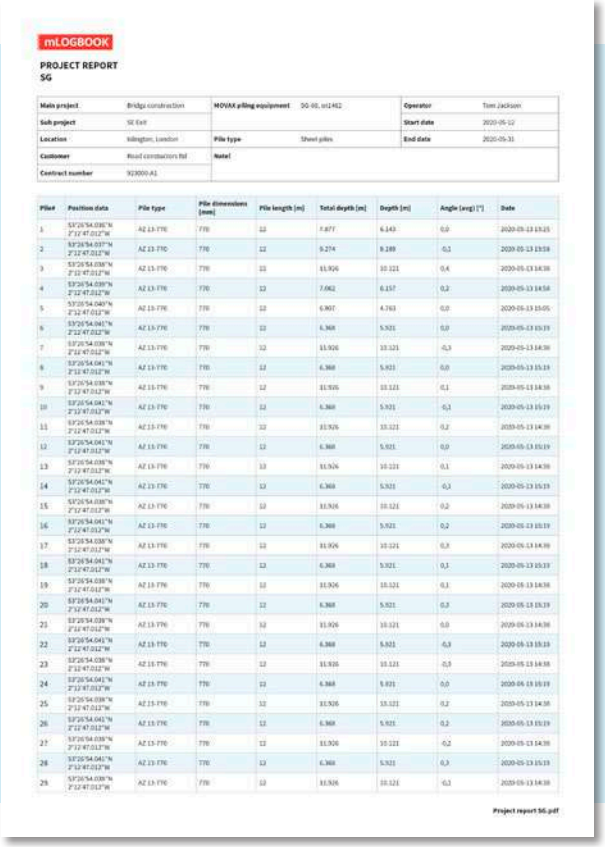
The 'Project overview' provides the information of all main projects and also sub-projects.



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-00, 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 contractors 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	9.189	-0,1	2020-05-13 13:59
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 2°12'47.012"W	AZ 13-770	770	12	11.926	10.121	0,0	2020-05-13 14:38
22	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
23	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
24	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
25	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
26	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
27	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
28	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
29	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

Project report SG.pdf

Project report SG

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 contractors ltd	Note!			
Contract number	923000-A1				

Pile#	Position data	Pile type	Pile dimensions [mm]	Pile length [m]	Total depth [m]	Depth DH [m]	Blows DH [bls]	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	3.734	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	1.083	90	-0,1	20,8/20	10/10	13,8/20	2020-05-13 13:59
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	20,1/20	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	46	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	17,4/20	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	18,8/20	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	11,1/20	9/10	14,3/20	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	14,9/20	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	8/10	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 2°12'47.012"W	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
22	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	-0,3	20,2/20	10/10	14,1/20	2020-05-13 15:19
23	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	-0,3	21,3/20	10/10	19,8/20	2020-05-13 14:38
24	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	14,1/20	2020-05-13 15:19
25	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	15,5/20	2020-05-13 14:38
26	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	0,2	22,2/20	10/10	14,6/20	2020-05-13 15:19
27	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	-0,2	21,9/20	10/10	15,2/20	2020-05-13 14:38
28	53°26'54.041"N 2°12'47.012"W	AZ 13-770	770	12	6.368	0.447	13	0,3	20,1/20	10/10	14,6/20	2020-05-13 15:19
29	53°26'54.038"N 2°12'47.012"W	AZ 13-770	770	12	11.926	1.805	125	-0,1	19,8/20	10/10	17,4/20	2020-05-13 14:38

Project report DH.pdf

Project report SG+DH

The individual, pile specific reports include the following information:

MOVAX SG Side grip pile driver

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

MOVAX DH Piling hammer

- Penetration rate
- Rate per blow
- Drop height
- Energy
- Inclination
- Flow profile
- Torque

MOVAX MPL 300/400/CFA

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

MOVAX MSL

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

In case multiple MOVAX piling equipment is used on the same site, the report will include all MOVAX piling equipment.

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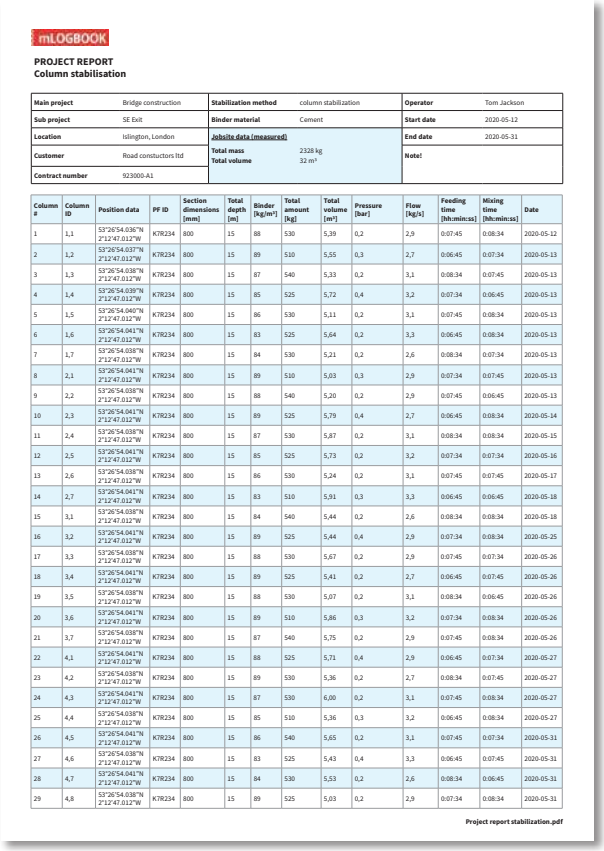
PROJECT REPORT

Main project	Bridge construction	**MOVAX piling equipment**	MPL-400/CFA, sn 1228	**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				

Piled	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	39,9	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	40	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	35,3	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
20	53°26'54.041"N 2°12'47.012"W	CFA	400	10	0,0	37,7	5,86	42	12:04:40	12:45:34	0:40:54	2020-05-26
21	53°26'54.038"N 2°12'47.012"W	CFA	400	10	0,1	40,9	5,75	28	13:07:22	13:30:22	0:23:00	2020-05-26
22	53°26'54.041"N 2°12'47.012"W	CFA	400	10	-0,2	36,1	5,71	37	13:45:55	13:59:22	0:13:27	2020-05-27
23	53°26'54.038"N 2°12'47.012"W	CFA	400	10	0,0	40,9	5,36	54	14:15:00	14:26:22	0:11:22	2020-05-27
24	53°26'54.041"N 2°12'47.012"W	CFA	400	10	-0,3	41,6	6,00	31	14:47:44	15:13:20	0:25:36	2020-05-27
25	53°26'54.038"N 2°12'47.012"W	CFA	400	10	0,2	36,1	5,36	46	14:15:00	14:26:22	0:11:22	2020-05-27
26	53°26'54.041"N 2°12'47.012"W	CFA	400	10	0,3	39,3	5,65	71	13:07:22	13:30:22	0:23:00	2020-05-31
27	53°26'54.038"N 2°12'47.012"W	CFA	400	10	0,2	35,5	5,43	59	14:15:00	14:26:22	0:11:22	2020-05-31
28	53°26'54.041"N 2°12'47.012"W	CFA	400	10	0,0	40,1	5,53	78	12:04:40	12:45:34	0:40:54	2020-05-31
29	53°26'54.038"N 2°12'47.012"W	CFA	400	10	0,1	38,2	5,03	76	13:07:22	13:30:22	0:23:00	2020-05-31

Project report CFA.pdf

Project report CFA



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** 2328 kg **Total volume** 32 m³		**Note!**	
Contract number	923000-A1				

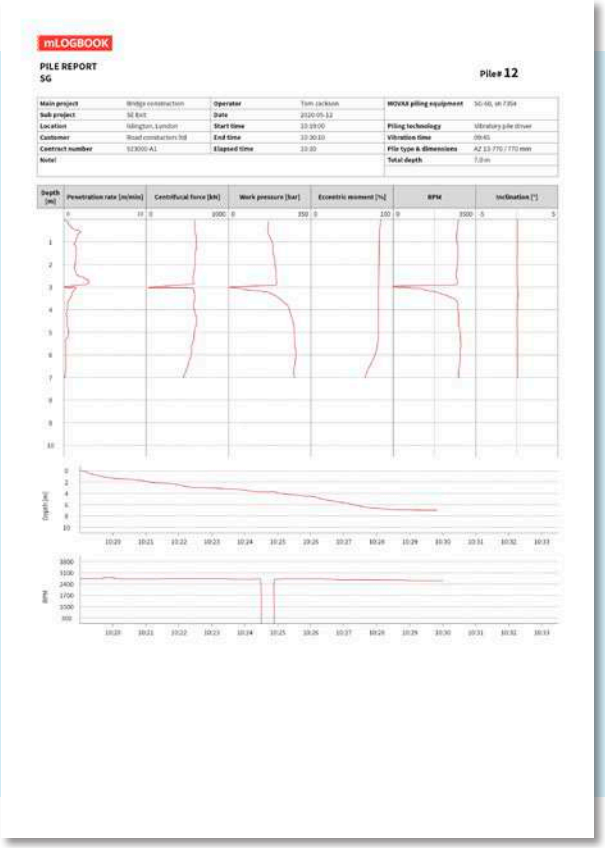
Column #	Column ID	Position data	PF ID	Section dimensions [mm]	Total depth [m]	Binder [kg/m³]	Total amount [kg]	Total volume [m³]	Pressure [bar]	Flow [kg/s]	Feeding time [hh:mm:ss]	Mixing time [hh:mm:ss]	Date
1	1,1	53°26'54.036"N 2°12'47.012"W	K7R234	800	15	88	530	5,39	0,2	2,9	0:07:45	0:08:34	2020-05-12
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
21	3,7	53°26'54.038"N 2°12'47.012"W	K7R234	800	15	87	540	5,75	0,2	2,9	0:07:45	0:08:34	2020-05-26
22	4,1	53°26'54.041"N 2°12'47.012"W	K7R234	800	15	88	525	5,71	0,4	2,9	0:06:45	0:07:34	2020-05-27
23	4,2	53°26'54.038"N 2°12'47.012"W	K7R234	800	15	89	530	5,36	0,2	2,7	0:08:34	0:07:45	2020-05-27
24	4,3	53°26'54.041"N 2°12'47.012"W	K7R234	800	15	87	530	6,00	0,2	3,1	0:07:45	0:08:34	2020-05-27
25	4,4	53°26'54.038"N 2°12'47.012"W	K7R234	800	15	85	510	5,36	0,3	3,2	0:06:45	0:08:34	2020-05-27
26	4,5	53°26'54.041"N 2°12'47.012"W	K7R234	800	15	86	540	5,65	0,2	3,1	0:07:45	0:07:34	2020-05-31
27	4,6	53°26'54.038"N 2°12'47.012"W	K7R234	800	15	83	525	5,43	0,4	3,3	0:06:45	0:07:45	2020-05-31
28	4,7	53°26'54.041"N 2°12'47.012"W	K7R234	800	15	84	530	5,53	0,2	2,6	0:08:34	0:06:45	2020-05-31
29	4,8	53°26'54.038"N 2°12'47.012"W	K7R234	800	15	89	525	5,03	0,2	2,9	0:07:34	0:08:34	2020-05-31

Project report stabilization.pdf

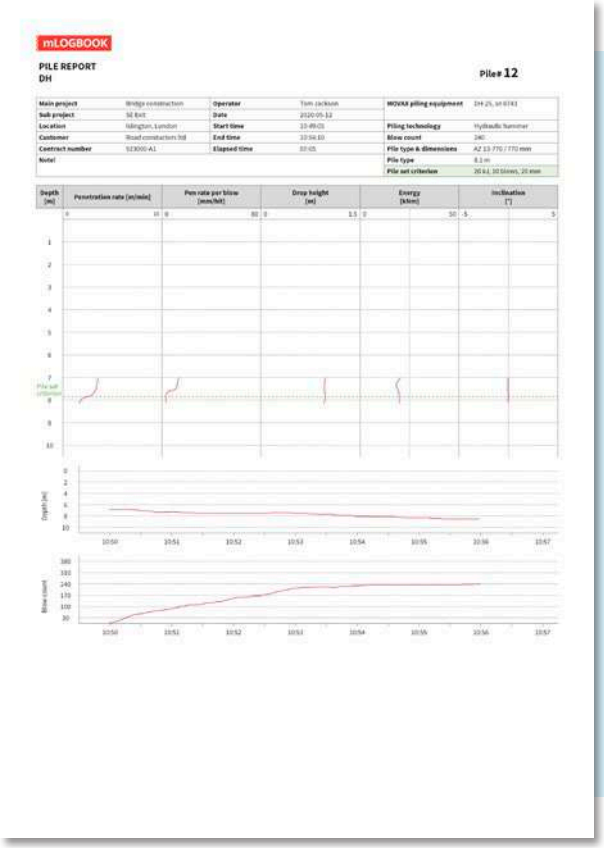
Project report MSL

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.



Pile report SG

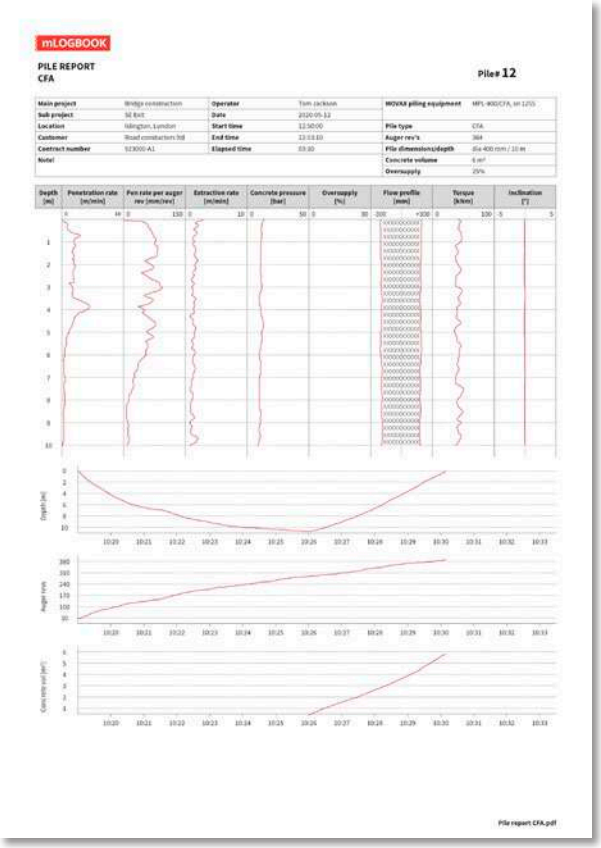


Pile report DH

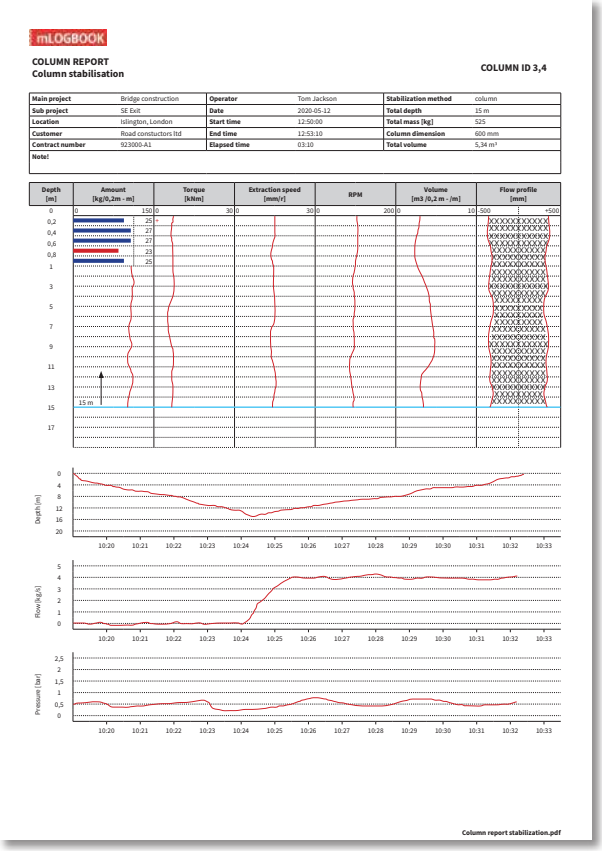
The individual, pile specific reports include the following information:

MOVAX SG Side grip pile driver	MOVAX DH Piling hammer	MOVAX MPL 300/400/CFA	MOVAX MSL
Penetration rate	Penetration rate	Position data	Position data
Centrifugal force	Rate per blow	Pile type	Pile type
Working pressure	Drop height	Pile dimensions	Pile dimensions
Eccentric moment	Energy	Pile depth	Pile depth
RPM	Inclination	Angle	Angle
Inclination	Flow profile	Torque	Torque
	Torque	Concrete volume	Binder amount
		Concrete pressure	Feed pressure
		Start time	Ascent rate
		End time	Start time
		Elapsed time	End time
		Date	Elapsed time
			Date

In case multiple MOVAX piling equipment is used on the same site, the report will include all MOVAX piling equipment.



Pile report CFA



Column report MSL

PILE CUT-OFF REPORT

A cut-off report is provided when the information related to the remaining section ie. the cut-off length of the pile is needed.

mLOGBOOK

CUT-OFF REPORT

Main project	Bridge construction	MOVAX piling equipment	SG-69, sn1462	Operator	Tom Jackson
Sub project	SE Exit		DH-25, sn1074	Start date	2020-05-12
Location	Islington, London	Pile type	Precast concrete	End date	2020-05-13
Customer	Road constructors ltd	Note!			
Contract number	923000-A1				

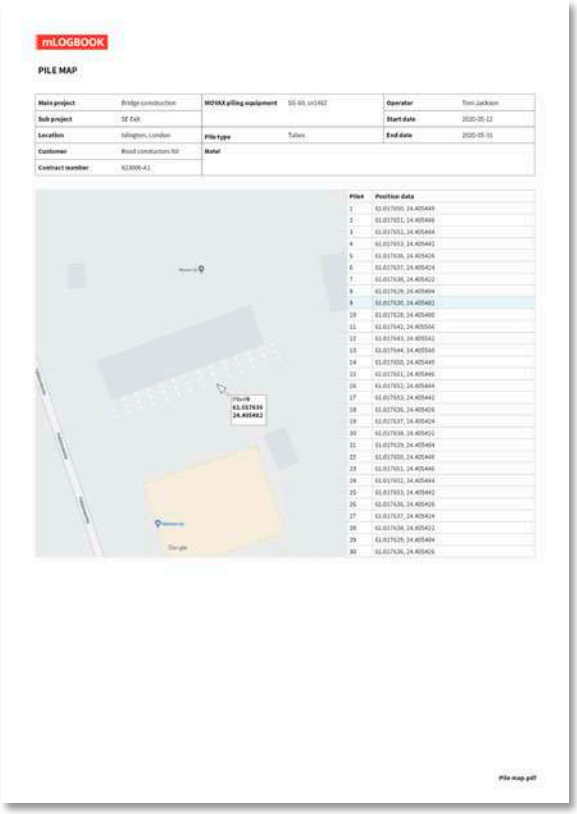
Pile#	Position data	Pile type	Pile dimensions [mm]	Pile length [m]	Total depth [m]	Angle (avg) [°]	Cut-off [m]	Ref level	Date
1	51°26'54.036"N 2°12'47.312"W	AZ 13-770	770	12	7.877	0.0	6.8	28	2020-05-13 13:25
2	51°26'54.037"N 2°12'47.312"W	AZ 13-770	770	11	6.274	-0.1	10.1	28	2020-05-13 13:58
3	51°26'54.038"N 2°12'47.312"W	AZ 13-770	770	12	11.936	0.4	12	28	2020-05-13 14:36
4	51°26'54.039"N 2°12'47.312"W	AZ 13-770	770	12	7.062	0.2	6.5	28	2020-05-13 14:58
5	51°26'54.036"N 2°12'47.312"W	AZ 13-770	770	12	7.877	0.0	6.8	28	2020-05-13 13:25
6	51°26'54.037"N 2°12'47.312"W	AZ 13-770	770	12	6.274	0.0	10.1	28	2020-05-13 13:58
7	51°26'54.038"N 2°12'47.312"W	AZ 13-770	770	12	11.936	-0.3	12	28	2020-05-13 14:36
8	51°26'54.039"N 2°12'47.312"W	AZ 13-770	770	12	7.062	0.0	6.5	28	2020-05-13 14:58
9	51°26'54.036"N 2°12'47.312"W	AZ 13-770	770	12	7.877	0.2	6.8	28	2020-05-13 13:25
10	51°26'54.037"N 2°12'47.312"W	AZ 13-770	770	12	6.274	-0.1	10.1	28	2020-05-13 13:58
11	51°26'54.038"N 2°12'47.312"W	AZ 13-770	770	12	11.936	0.2	12	28	2020-05-13 14:36
12	51°26'54.039"N 2°12'47.312"W	AZ 13-770	770	12	7.062	0.0	6.5	28	2020-05-13 14:58
13	51°26'54.036"N 2°12'47.312"W	AZ 13-770	770	12	7.877	0.1	6.8	28	2020-05-13 13:25
14	51°26'54.037"N 2°12'47.312"W	AZ 13-770	770	12	6.274	-0.1	10.1	28	2020-05-13 13:58
15	51°26'54.038"N 2°12'47.312"W	AZ 13-770	770	12	11.936	0.2	12	28	2020-05-13 14:36
16	51°26'54.039"N 2°12'47.312"W	AZ 13-770	770	12	7.062	0.2	6.5	28	2020-05-13 14:58
17	51°26'54.036"N 2°12'47.312"W	AZ 13-770	770	12	7.877	0.3	6.8	28	2020-05-13 13:25
18	51°26'54.037"N 2°12'47.312"W	AZ 13-770	770	12	6.274	0.2	10.1	28	2020-05-13 13:58
19	51°26'54.038"N 2°12'47.312"W	AZ 13-770	770	12	11.936	0.1	12	28	2020-05-13 14:36
20	51°26'54.039"N 2°12'47.312"W	AZ 13-770	770	12	7.062	0.3	6.5	28	2020-05-13 14:58
21	51°26'54.036"N 2°12'47.312"W	AZ 13-770	770	12	7.877	0.0	6.8	28	2020-05-13 13:25
22	51°26'54.037"N 2°12'47.312"W	AZ 13-770	770	12	6.274	-0.3	10.1	28	2020-05-13 13:58
23	51°26'54.038"N 2°12'47.312"W	AZ 13-770	770	12	11.936	-0.3	12	28	2020-05-13 14:36
24	51°26'54.039"N 2°12'47.312"W	AZ 13-770	770	12	7.062	0.0	6.5	28	2020-05-13 14:58
25	51°26'54.039"N 2°12'47.312"W	AZ 13-770	770	12	7.062	0.2	6.5	28	2020-05-13 14:58

Cut-off report.pdf

Pile cut-off report

PILE MAP

When connected to a third party global positioning system or when or when equipped with an independent global positioning sensor, also a pile map can be generated.



mLOGBOOK

PILE MAP

Main project	Bridge construction	MOVAX piling equipment	SG-69, sn1462	Operator	Tom Jackson
Sub project	SE Exit			Start date	2020-05-12
Location	Islington, London	Pile type	Tubes	End date	2020-05-13
Customer	Road constructors ltd	Note!			
Contract number	923000-A1				

Pile#	Position data
1	61.017650, 24.405449
2	61.017651, 24.405446
3	61.017651, 24.405444
4	61.017653, 24.405442
5	61.017636, 24.405428
6	61.017637, 24.405424
7	61.017636, 24.405422
8	61.017629, 24.405484
9	61.017630, 24.405482
10	61.017628, 24.405480
11	61.017642, 24.405566
12	61.017643, 24.405562
13	61.017644, 24.405560
14	61.017650, 24.405449
15	61.017651, 24.405446
16	61.017651, 24.405444
17	61.017653, 24.405442
18	61.017636, 24.405428
19	61.017637, 24.405424
20	61.017639, 24.405422
21	61.017629, 24.405484
22	61.017650, 24.405449
23	61.017651, 24.405446
24	61.017652, 24.405444
25	61.017653, 24.405442
26	61.017636, 24.405428
27	61.017637, 24.405424
28	61.017639, 24.405422
29	61.017629, 24.405484
30	61.017636, 24.405426

Pile map.pdf

Pile map

mLOGBOOK

PILE MAP

Main project	Bridge construction	MOVAX piling equipment	SG-69, sn1462	Operator	Tom Jackson
Sub project	SE Exit			Start date	2020-05-12
Location	Islington, London	Pile type	Tubes	End date	2020-05-13
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24	61.017652, 24.405444
25	61.017653, 24.405442
26	61.017636, 24.405428
27	61.017637, 24.405424
28	61.017639, 24.405422
29	61.017629, 24.405484
30	61.017636, 24.405426

Pile map.pdf

Pile map

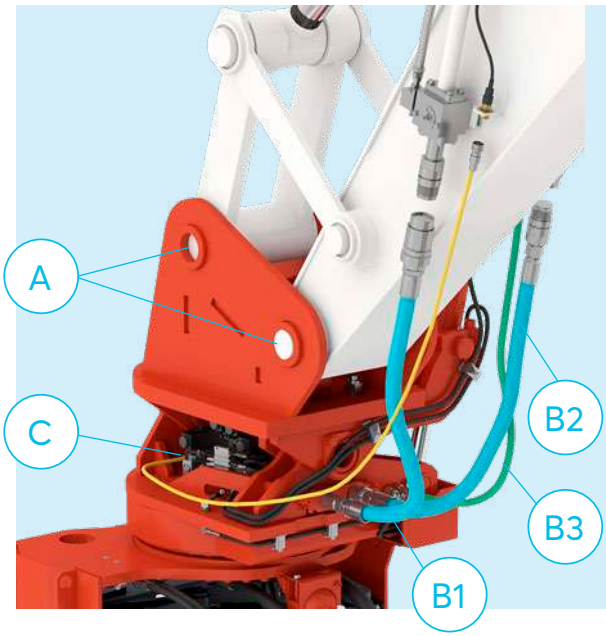
MOVAX

ADAPTERS

MOVAX piling equipment is connected to the excavator acting as carrier mechanically, hydraulically and electronically.

MOVAX Adapters are utilized to connect the MOVAX piling equipment – **SG-side grip pile drivers, DH-piling hammers, PA-pre-augers and TAD/KB-piling drills** – mechanically to the excavator. Each MOVAX piling equipment and model requires its own adapter. All adapters are furthermore excavator brand and model specific.

MOVAX Adapters are available for all types of couplers used on excavators ranging from pin connectors to mechanical and automatic quick couplers. The MOVAX Adapter is always customised for the excavator brand and model in question.



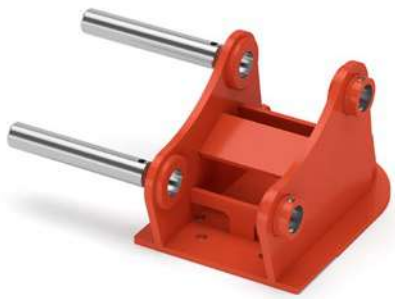
CONNECTIONS

A. Mechanical connection
B. Hydraulic connection
   - B1 Pressure
   - B2 (tank) Return
   - B3 Drain
C. Electrical connection

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 AND 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**
- etc.

WÜRTH
TIG
CE

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.

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 practises - 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 mFleetCare

Audits | Preventive maintenance | Corrective maintenance | Training services | Installation services | Engineering services | Spare parts

CAT
MOVAX

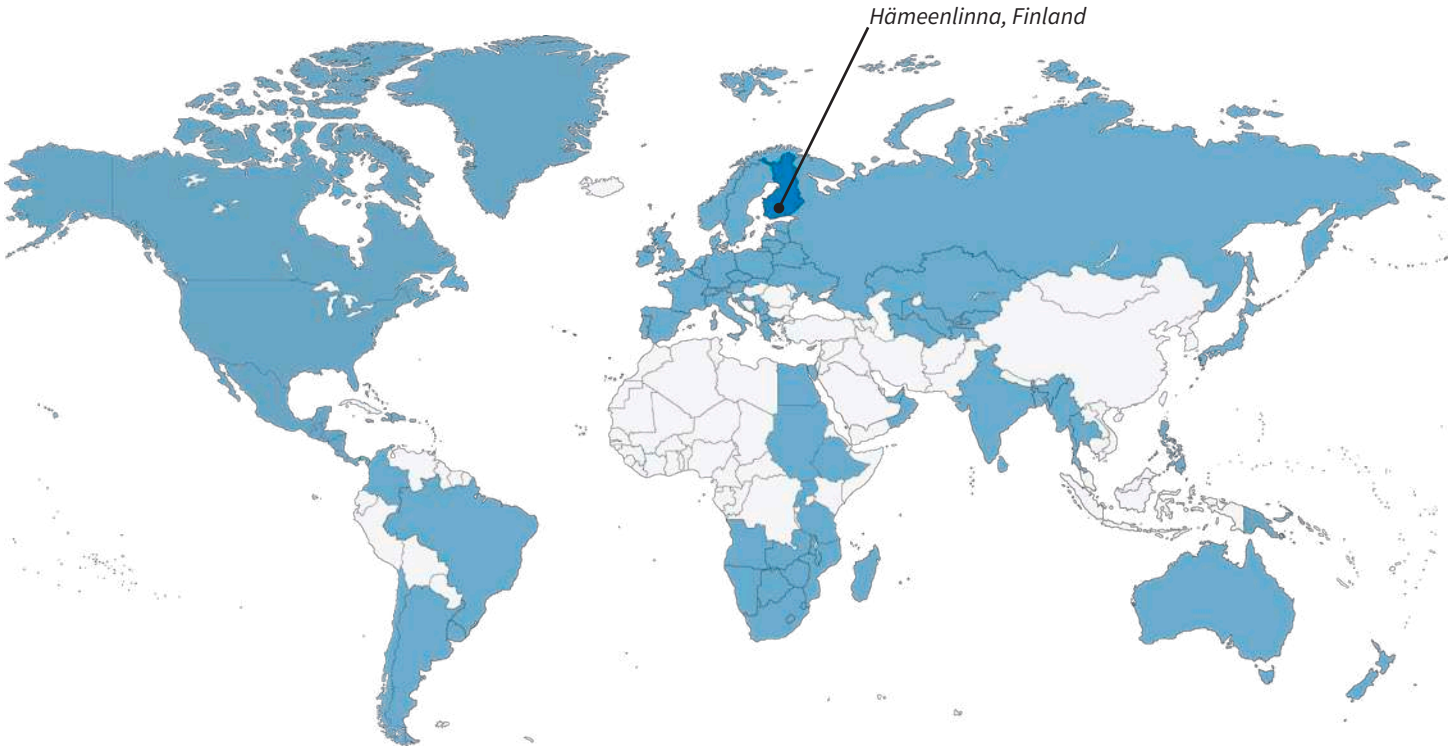
SERVICES

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.



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for MOVAX world wide partners kindly refer to:
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