



PILING HAMMERS

TECHNICAL
SPECIFICATION

VALID
FROM
JAN25





INTRODUCTION

PILING HAMMER TECHNOLOGY

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

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

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

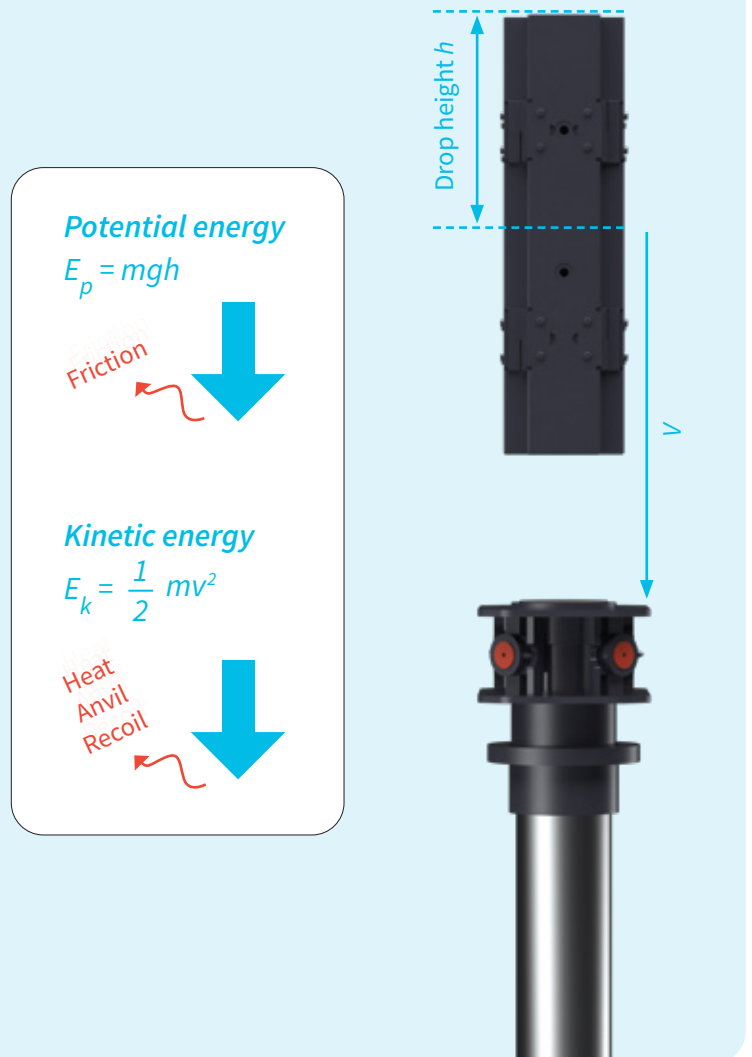
Hydraulic, double-acting piling hammer

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

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

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

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





PILING HAMMERS

FEATURES

EXCAVATOR-MOUNTED

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

COMPREHENSIVE MODEL & SIZE RANGE

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

DOUBLE ACTING, IMPACT TYPE TECHNOLOGY

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

VERSATILE OPTIONS

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

MOVAX MODULAR SYSTEM

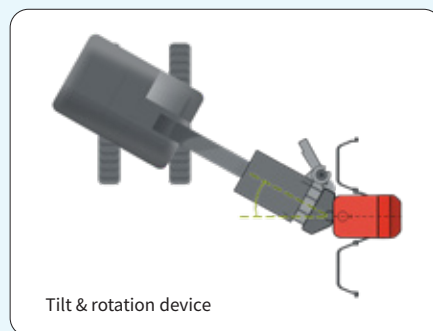
- Versatility based on the MOVAX Modular System™ which enables the use of the same unit for a wide range of different piling requirements and type of piles. The modular system includes a wide range of pile caps.

MOVAX CONTROL SYSTEM

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

MOVAX INFORMATION MANAGEMENT SYSTEM

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



Tilt & rotation device

DRIVING LOAD BEARING PILES & ASSISTING IN SHEET PILE DRIVING



PILING HAMMERS

MOUNTING OPTIONS

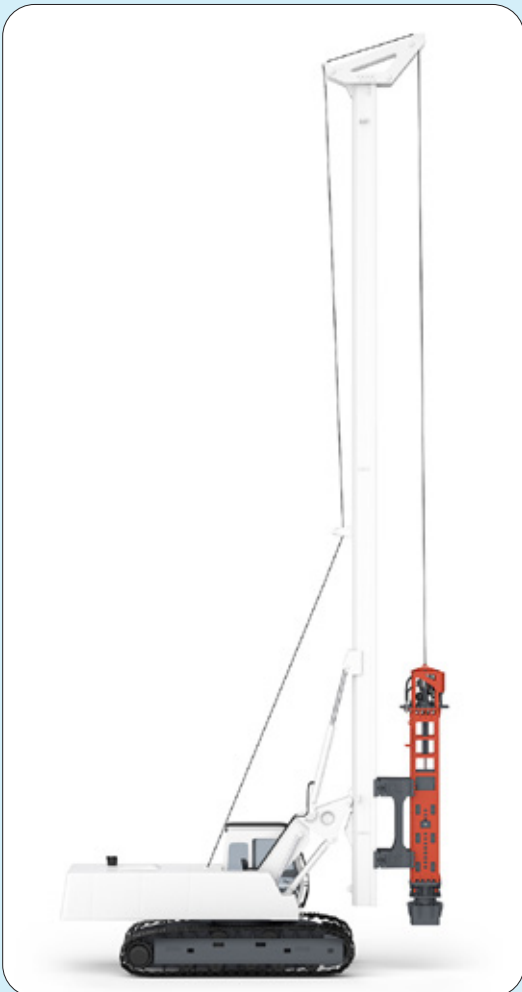
The MOVAX piling hammers can be mounted directly onto the excavator (stick), onto MOVAX Multi-tool piling leader, or a third-party piling rig or crane.



Excavator-mounted



MOVAX multi-tool piling leader-mounted



Piling rig-mounted



Crane-mounted

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

MOUNTING BRACKET

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



Excavator-mounted



MPL-mounted



Piling rig-mounted

TOP COVER

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



Excavator- &
MPL-mounted



Piling rig-/crane
-mounted

LOWER FRAME

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



Excavator-, MPL- &
piling rig-mounted



Crane mounted
(with Bell)



PILING HAMMERS

PILE HANDLER

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



TECHNICAL DATA

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





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 be used to drive different type of piles.

SELECTION CHART

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

NOTE!

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

PILING HAMMERS

PILE CAPS

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

SHEET PILES / H BEAMS



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



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

TUBULAR STEEL PILES, MICROPILES



DH-15 and DH-25
XS Ø 88,9–273 mm



DH-35 and DH-45
XS Ø 88,9–323,9 mm

TUBULAR STEEL PILES

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

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

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



External guide (Standard)

Available by request:



Flat



Internal guide

PRE-CAST CONCRETE PILES



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

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

TIMBER PILES



DH-15, DH-25

Round
XS Ø 90–220
S Ø 220–510

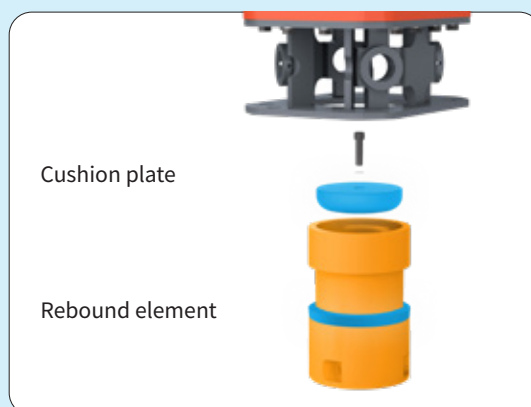
Square
XS 225 x 225 mm
S 250 x 250 mm
M 300 x 300 mm
L 350 x 350 mm



DH-35, DH-45

Round
XS Ø 90–325
S Ø 270–510

Square
XS 225 x 225 mm
S 250 x 250 mm
M 300 x 300 mm
L 350 x 350 mm



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

PILING HAMMERS

TECHNICAL DATA

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

¹ excluding adapter

² with tilt

³ with tilt+rotate



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







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