MENCK

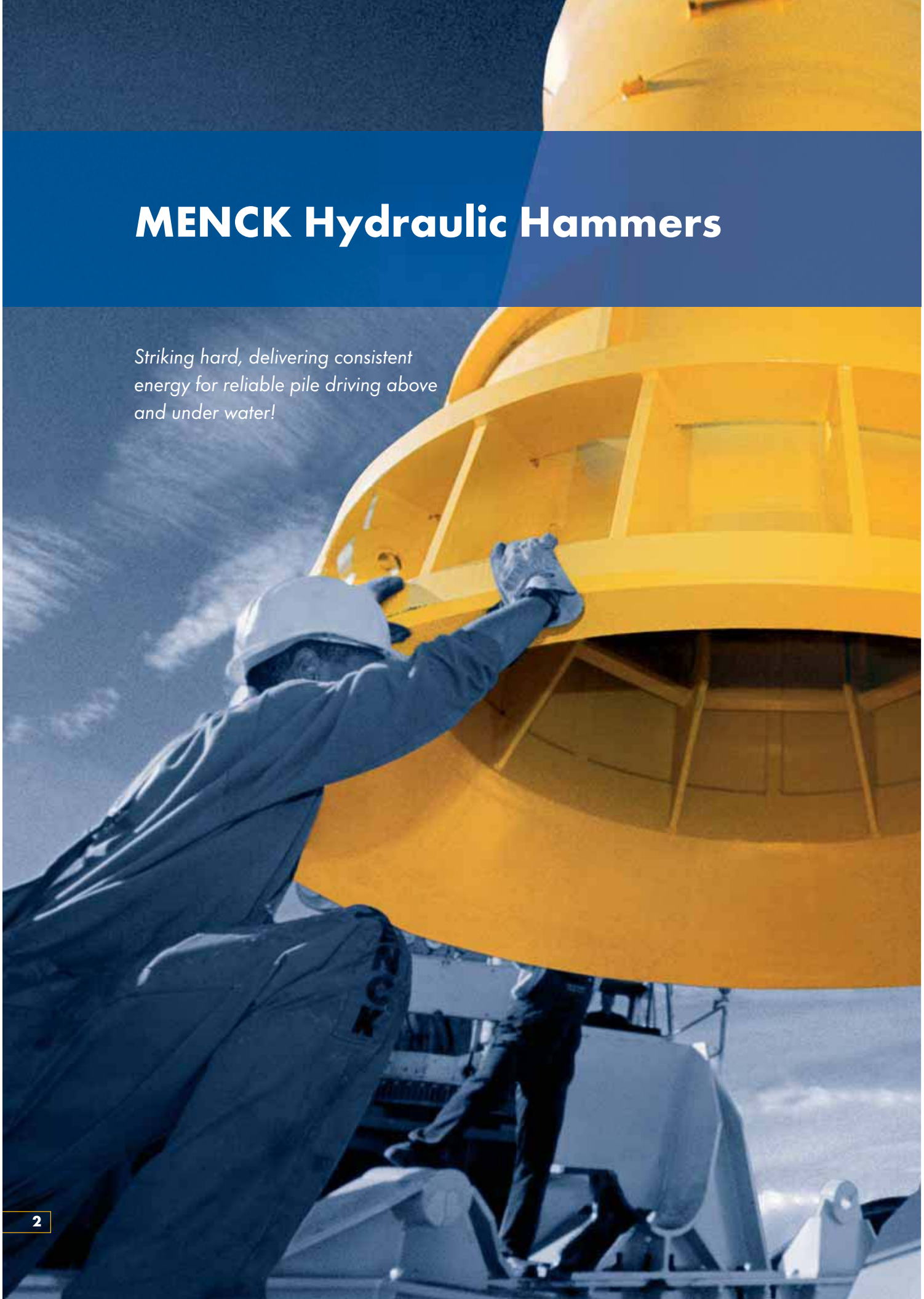
MHU

an ACTEON company

YOUR SUCCESS – BASED ON MENCK

MENCK Hydraulic Hammers

Striking hard, delivering consistent energy for reliable pile driving above and under water!



Bridges and Harbors

Offshore Wind Farms

Deepwater Exploration

Since the introduction of our first steam hammer in 1886, MENCK has continued to provide outstanding customer service through high quality and innovative pile driving solutions.

We moved offshore over 40 years ago and have developed our core competence in hydraulics and engineering in the high seas. We've driven piles from harbor expansion and bridge stabilization to offshore oil platforms, conductor installation, deepwater structures and on to renewables with offshore wind farms.

The center of our pile driving solution is our MHU MENCK Hydraulic Underwater hammer. The hammer's flexible design allows us to customize our solution to customer needs. Starting small at 100 kJ we can provide hammers in varying energy intervals all the way up to, but not limited to, our largest hammer ever built: the MHU 3000, offering a whopping 3000 kJ of power.

In addition, the base of our hammer can be adapted to varying pile sizes such as small 20" conductors to > 5 m monopiles; the submersible MHU has the ability to work at depths deeper than 2000 m.

There's no doubt about it. The MHU is built tough to withstand the harsh offshore conditions and deliver reliable and consistent performance.

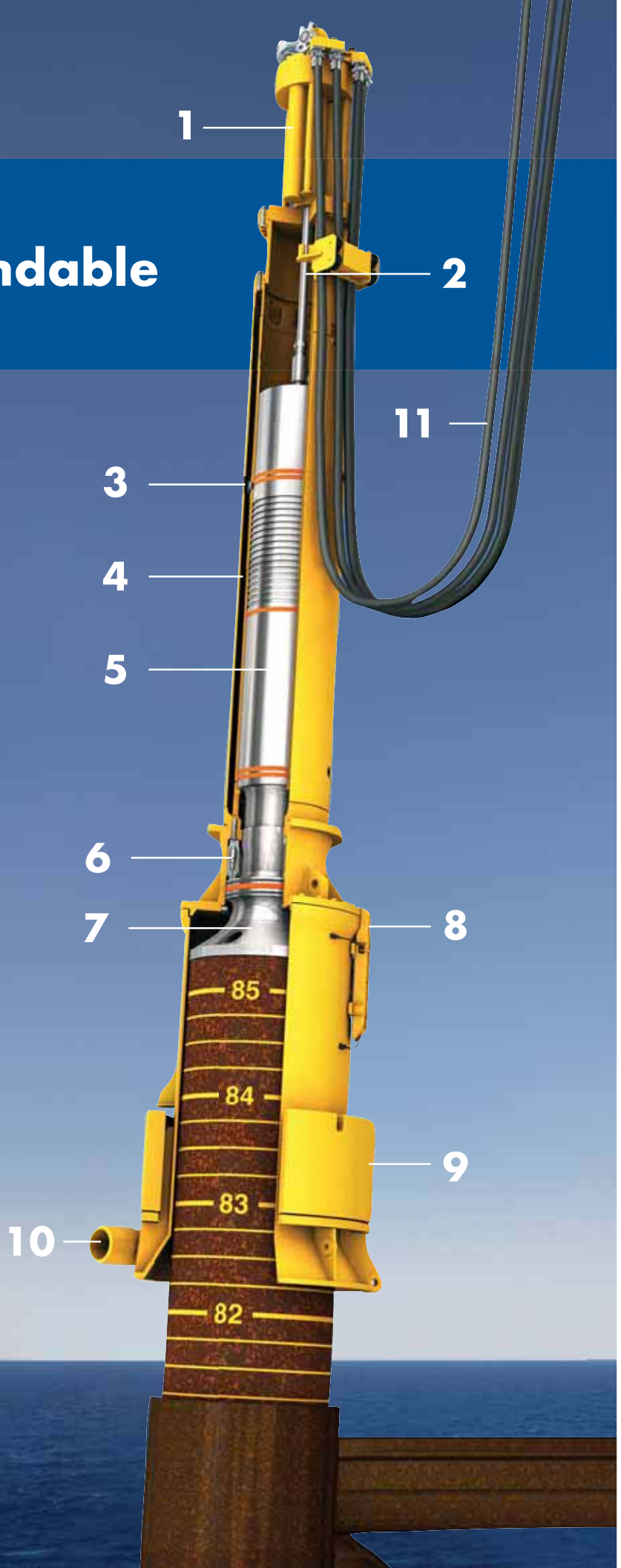
Our complete service program ensures the longevity and efficiency of our pile driving system.

We've found our home in the sea and based your success on MENCK.

Conventional Offshore Oil and Gas exploration

Rugged & Dependable

1. Hydraulic drive unit
2. Piston rod
3. Ram proximity sensor
4. Double walled hammer housing
5. Ram weight
6. Shock absorber
7. Anvil
8. Water level pile sleeve sensor
9. Optional underwater ballast
10. Eccentric up-righting pins
11. Hydraulic hoses



Big pile adaption

Eccentric up-righting system

Exchangeable pile sleeve inserts

Exchangeable insert system
Our insert system allows for quick and easy pile sleeve adaptation for various pile sizes, reducing set-up time.

Seamless power change
Through our MHC 21 hydraulic control system, hammer performance is monitored in real time and the energy level can be seamlessly adjusted from 10% to 100% of nominal energy.

Double acting
The MHU utilizes a double-acting hydraulic drive unit which not only pulls the ram weight up but also pushes it back down, utilizing a higher energy output with a lower total hammer weight.

Free riding hammer for jacket installation

Eccentric up-righting system
Offsetting the lifting supports with eccentric pins allows for lower ceiling clearance for transport and a smaller footprint on deck.

Safety shut-off devices
If the shackle leaves its horizontal resting position, indicating tension on the crane line, the hammer automatically stops. Sensors monitor hammer to pile contact. If there is not proper contact to the pile, the hammer will not operate.

Shock absorber ring
The shock absorption system dampens energy rebound from the pile to reduce fatigue on the hammer.

Pressure compensation system
An external compressor fills the area where the hammer meets the pile with air. The system monitors the water level inside the pile sleeve, preventing water blows and associated energy loss.

Underwater anvil
Our special anvil design provides an escape for water through the anvil, thus eliminating the need for relief holes in the pile.

Biodegradable oil
Environmentally-friendly through the use of conventional oil.

Versatile Product Portfolio

MHU above & shallow water series

	Unit	100C	150S	300S	440S	550S	800S	1200S	1900S	3000S
Minimum energy	kJ	10	15	30	40	50	80	110	190	300
Maximum energy – surface	kJ	100	150	300	440	550	820	1200	1900	3000
Oil flow	l/min	240	380	650	1000	1150	1600	2400	3200	5500
Blow rate at max energy	bl/min	50	38	40	38	38	38	38	32	32
Ram weight	t	5.0	8.2	16.2	24.3	30.2	45.4	66	95	180
Total hammer weight	t	15.6	19.5	30.8	46.1	54.2	79.6	119.2	157.6	310
Standard Configuration										
Pile sleeve		48"	48"	1.6 m	60"	72"	84"	96"	102"	102"
Total weight dry	t	15.6	29.4	45.3	60.2	75.2	113	166.3	217.5	375
Total weight dry w/ballast	t		32.7	52.6	76.2	87.3	139	203.3	244.5	460
Total weight under water	t		24.5	42.4	62	70.5	112	169.3	197.7	
Hammer length w/pile sleeve	m	10.4	10.2	12.4	14.2	15.2	17.1	18.9	22.1	23.4

MHU deepwater series

	Unit	270T	400T	500T	750T
Minimum energy	kJ	30	40	50	75
Maximum energy – surface	kJ	300	440	550	820
Maximum energy – 1000 m depth	kJ	270	400	500	750
Oil flow	L/min	600	1000	1150	1600
Blow rate at max energy	bl/min	40	38	38	38
Ram weight	t	16.2	24.3	30.2	45.4
Total hammer weight	t	30.8	49.1	59.8	79.6
Standard Configuration					
Pile sleeve		1.6 m	60"	2.2 m	84"
Total weight dry w/MHP DWS	t	66	85.8	113.7	147.8
Total weight under water	t	52.5	75.5	90	118.3
Hammer length w/pile sleeve	m	12.7	14.5	16	17.6

MHU 270T – conductors

MHU 1900S – monopiles

MHU 100C

Quality check for optimal performance

MENCK hammers are known within the industry for their performance and reliability. Our standard sizes such as the MHU-270T, 500T and 800S have proven themselves time and again. We are constantly listening to our customers and can provide hammers for specific needs.

The modular design of the MHU gives flexibility for size adaptation, easy mobilization and demobilization as well as easy access for maintenance.

MENCK has developed an integrated system offering for offshore pile driving applications. Complementing the MHU are system components and services such as:

- hydraulic lines and winches
- on deck power packs (MHP)
- our patented deepwater power pack (MHP DWS)
- highly-qualified service technicians
- project management and engineering services
- complete after-market care including maintenance, spare parts and fleet management

MENCK pile driving solutions are a winning combination for your project.