

On location

Oslo harbour,
Norway

CUTTING EDGE HYDRODEMOLITION

AQS-086 APRIL 2016



ASSIGNMENT:
Removal of concrete from a 4000m² pier

AQUAJET
SYSTEMS AB



"Before we have used some rail systems and also smaller robots, but not with the flexibility the robot have today. It was a mix of manual work, demolition with bazooka which is hand held, but that is also a dangerous operation and also a lot to take count of. So about hydrodemolition of concrete we are sure that using high water pressure is the method that have come to stay!" says Geir Lunde from Skanska AS Norway.



The impossible made possible in Oslo, Norway

At the harbor in Oslo, Skanska AS Norway is performing a major renovation of the structural parts of a 4000 square meter large pier. A dangerous and seemingly impossible operation due to tide and an inaccessible subsurface working area. But with the help from Aquajet Systems, the impossible is made possible.

The massive project at the Pipervika quay in Oslo, Norway, is undertaken by Skanska AS. Under the large pier Skanska AS discovered extreme damages in the structural bearing parts. That's bad news in itself. Furthermore, most parts are inaccessible for large demolition robots. Above all, the pier is an unsafe environment for Skanska's workers, due to tide and subsurface concrete removal. Something extraordinary had to be done to avoid dangerous, time consuming and hard manual labor. For the job at hand Skanska chose the Aqua Cutter 410A with a disconnectable power control module (PCM), in combination with a Power Pack ECOSILENCE, by Aquajet Systems.

GO WITH THE FLOW – AT A SAFE DISTANCE

Back in the hard days everything was done by hand, which means that a project like this would not have been possible. In the past Skanska AS used unpredictable rail systems and old, ineffective pumps from the 80's. Those days are long gone thanks to Aquajet Systems. The solution from Aquajet Systems allows Skanska AS to disconnect the power control module from the tracked crawler. This allow the operators to safely drive the crawler into the tight and flooded areas under the pier.

The Aqua Cutter is powered by a cord to the PCM, which stands on dry land, and the robot is controlled with a remote control. In other words, the operators have total control in horizontal, vertical and overhead operations – at a safe distance without getting their feet wet.

The Aqua Cutter 410A is used with the Power Pack ECOSILENCE, a super silent high-pressure unit, specially designed for Hydrodemolition in urban environments with highly regulated noise levels. In this case, pressure and flow were set at 1000 bar and 180 l/min.

SIGNIFICANT IMPROVEMENT FOR SKANSKA AS

According to Skanska AS in Norway the operators have increased efficiency by almost 50% and have removed 750 metric tons of concrete so far, with less effort compared to before – all thanks to Aquajet Systems.



AQUAJET PRODUCTS USED



AQUA CUTTER 410A evolution

Total weight	1190 kg (2620 lb)
Length	2,1 m (6,9 ft)
Min. width	0,78 m (2,6 ft)
Track width	0,78-1,16 m (2,6-3,8 ft)
Min. height	0,99/1,07 m (3,2/3,5 ft)
Operating height	3 m (9,8 ft)
Side reach	1,3 m (4,3 ft)
Lance angle	± 45°
Working width	0-1,7 m (0-5,6 ft)
Working width extended	0-3,2 m (0-10,5 ft)
Drive source	Electric engine 3 phase 5,5 kW 400 VAC 16A (other on request)



PCM Carrier

PCM position	Backward/Forward
Brakes	Front wheels
Steering	Front wheels
Weight	70kg (154 lb)



POWER PACK ecosilence

Pressure	14 500 psi/1000 bar
Flow	261 l/min (69 US Gal/min)
Tank volume	925 l (225 US Gal)
Approx. Weight	11 500-12 000 kg
Noise level	58-63 dB
Length	7,010 m (ISO 23')
Length	6,058 m (ISO 20')
Cargo length 23'	2,650 m (8,9')
Cargo length 20'	1,700 m (5,6')
Width	2,438 m (ISO 8')
Inner width	2,105 m (6,9')
Height	2,591 m (ISO 8,5')
Inner height	2,258 m (7,4')

→ Read more at www.aquajet.se