



Figure 1 - Prefabricated Gates on Olmsted Locks and Dam

The Project

The Army Corps of Engineers is constructing a new concrete dam and locks on the Ohio River located near Olmsted, Illinois. Scheduled to become operational in 2016 the Olmsted Locks and Dam project consists of a dam with five tainter gates (figure 1), a 1,400 foot (427m) navigable pass and lock chambers 1,200 feet (370m) long by 110 feet (34m) wide (figure 2).



Figure 2 - Army Corp of Engineers Olmsted Locks and Dam



Figure 3 - Heavy steel H piles and sheeting

The Challenge

As part of the foundation for the new locks and dam, the Army Corps of Engineers drove heavy steel “H piles” and “H sheeting” into the river bed (figure 3). Afterwards, these metal structures required horizontal cutting underwater at depths up to 70 feet (21m). Due to the hazardous conditions—swirling, fast flowing muddy waters with near zero visibility—diver intervention was ruled out. A surface operated, remote controlled cutting solution was called for to make these difficult cuts.

The Solution

E.H. Wachs applied its experience in remote controlled underwater metal cutting to build a machine for this unique application. We engineered a system that utilizes a UCP-3 Universal Control Panel controlling a Wachs Diamond Wire Saw as the cutting element (figure 4).

Wachs designed a clamp and traverse mechanism (figure 5) that allows the frame assembly to guide down an H pile to a preset depth, clamp to it and horizontally sever the H pile and adjacent H sheeting. The assembly is then raised, guided to the next H pile and the operation repeated.



Figure 4 - High Speed Diamond Wire Cutting

The Technology

Highly reliable and durable, the Wachs Diamond Wire Saw uses a high speed rotating diamond infused wire as the cutting element, lubricated and cooled by the water it's submerged in. The high speed wire cutting element has the ability to “cut itself out of a bind,” resisting the forces that tend to bind traditional cutting devices.

E.H. Wachs has a wide range of technologies available for difficult or unusual applications. For the Olmsted project we combined the effectiveness and reliability of Wachs standard products with a customized clamping and travel mechanism to deliver a reliable, affordable solution to this unique application.

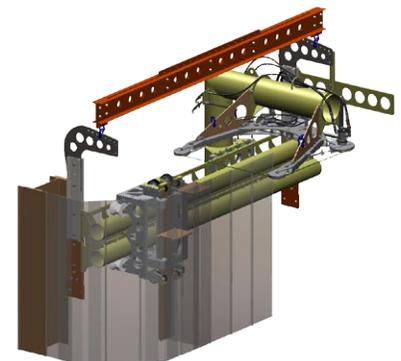


Figure 5 - Custom Clamp and Traverse Mechanism

Executive Summary

E.H. Wachs, in partnership with the Army Corps of Engineers, manufactured a customized, remote controlled underwater cutting system to horizontally cut submerged steel beams and sheeting used in the foundation of the new Olmsted Locks and Dam on the Ohio River.

In addition to our standard weld prep machines tools, Wachs offers custom solutions to specific applications like this one. These solutions range from simple, such as specialized tooling, to modifications to our standard machines, to complex fully customized software and hardware integrated solutions. We did a dam good job for the Corps of Engineers...just think what we can do for you.

Talk to one of our product specialists today and let us know what your special machining challenge is—we have the engineering expertise and manufacturing capability to deliver a solution that works, on time and on budget.

E.H. Wachs[®] Industrial Division

- ▶ Industrial Pipe Cutting and Beveling Products
- ▶ Portable Weld Prep Machine Tools
- ▶ Split Frames, Guillotine[®] Pipe Saws, Trav-L-Cutter[®]
- ▶ End Prep Machines, Flange Facers, Hydraulic Power Units
- ▶ Onsite Technicians, Factory Training, Engineered Products
- ▶ Strategically Located Sales and Service Centers



Quality and Innovation Since 1883

E.H. Wachs[®] has a long history of quality manufacturing and product innovation, dating back to 1883. Today our Industrial division builds the finest portable, cold cutting weld prep machine tools including I.D. and O.D. mounted pipe cutters and bevelers, flange facers, the Trav-L-Cutter[®] and Guillotine[®] pipe saws, boiler tube bevelers and handheld valve turners/exercisers.

Our products are renowned for their engineering excellence, precision manufacturing and rugged reliability. They're sold and serviced worldwide through our international dealer network and Wachs Sales and Service Centers located in Illinois, Texas, Canada, the UK, Singapore, Germany and the UAE.



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