

# E.H. WACHS

**WACHS**



**E.H. WACHS®**

Superior Equipment. Complete Support.™

PORTABLE WELD PREP MACHINE TOOLS

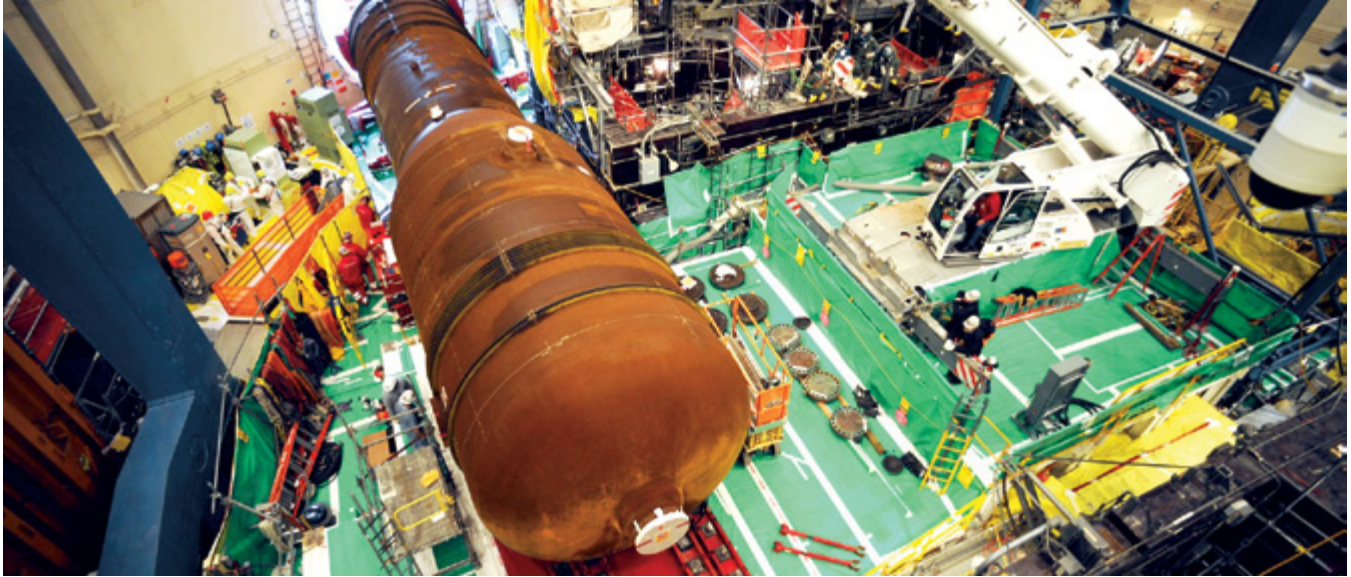
## **NUCLEAR**

Tools for Pipe Cutting/Beveling  
and Flange Facing



[ehwachs.com](http://ehwachs.com)





E.H. Wachs experience in nuclear power dates back to the dawn of the nuclear age. Following our defense work for the U.S. Navy in the 1940's, we became known as a reliable supplier of specialized equipment. When the Navy made history in 1954 with the launch of the first nuclear powered submarine, the USS Nautilus, Wachs was there. We machined the Nautilus' reactor seal, marking the beginning of our long history of achievements in the nuclear field.

The lessons learned from early nuclear propulsion systems were carried forward to the first generation of civilian nuclear power plants. Again Wachs was there - our experience with the maintenance and upgrading of these plants made us the preferred supplier of onsite machining equipment to the young nuclear industry. When Three Mile Island made headlines in 1979, a Wachs division was there to create special machines to help in the cleanup.

When you have a task to complete you don't think in terms of machine tools, you think in terms of solutions to your machining problems or applications. At E.H. Wachs, so do we.

We offer a broad range of machines, utilizing a wide range of machining technologies, one of which will be ideal for your application. For onsite cutting, beveling, weld prep or machining of pipes and vessels Wachs standard and specialty machines remain the first choice of nuclear industry professionals worldwide.

**Our experience in nuclear power dates back to the dawn of the nuclear age.**

It's our wealth of experience in combining design and manufacturing, hardware and software, automation and full system integration that should make Wachs your first choice for onsite machining products. For new construction, maintenance, power uprates or decommissioning projects contact your Wachs representative to learn how the best solutions begin with Superior Equipment. Complete Support.™

**WACHS** **E.H. WACHS**®  
A Division of ITW  
Superior Equipment. Complete Support.™

Certified System  
ISO 9001





When you choose E.H. Wachs you're partnering with the industry leader in onsite machining for the nuclear power industry. When choosing a partner the support after the sale is critical, meaning the availability of parts, service, tooling, training, and technical support. We call it Complete Support, and it includes our worldwide dealer network and strategically located Sales and Service Centers. Most importantly, it includes the engineering talent and manufacturing capability to modify standard products or custom design a complete machining solution.

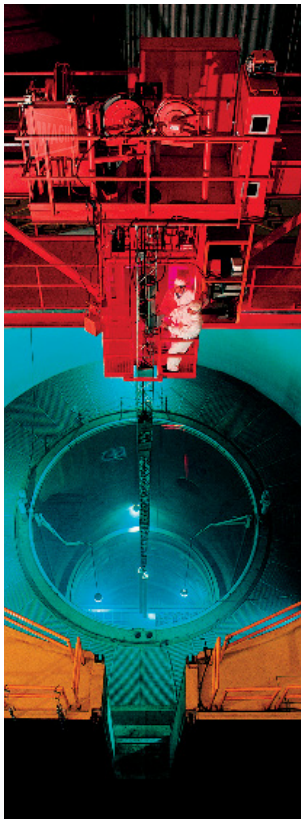
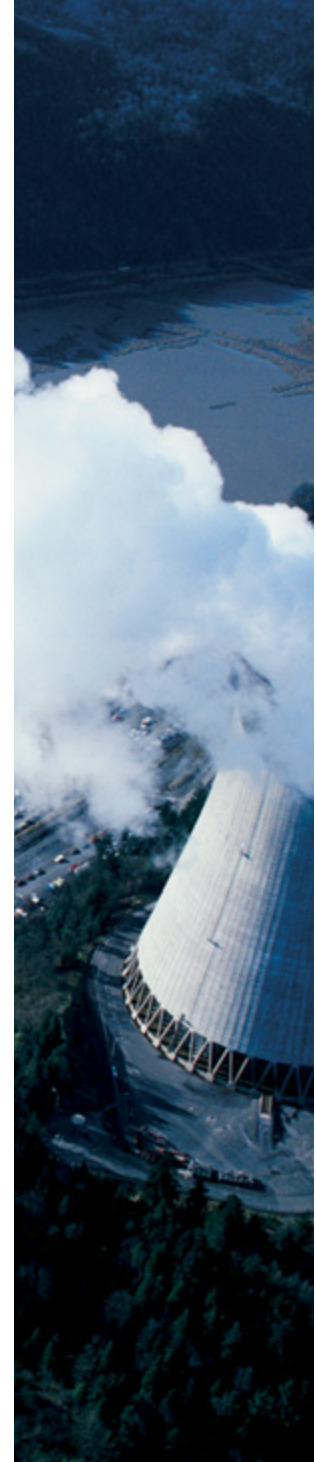
**Support includes  
60 years of  
knowledge acquired  
working with the  
nuclear industry.**

Complete Support goes beyond products, it includes the knowledge base we've acquired over 60 years of working with nuclear industry professionals. It includes our experience in plants with the major reactor technologies, including first generation BWR and PWR, CANDU reactors, as well as Advanced Nuclear Power Reactor Designs including Areva NP APWR, General Electric ABWR, Hitachi ABWR, Toshiba ABWR, Mitsubishi APWR, and the Westinghouse AP1000.

Our partners rely on Wachs to help with the maintenance, repair and performance of nuclear power plants. As a recognized onsite machining expert, E.H. Wachs has partnered with some of the industry's most respected names including:

- ❖ AECL Atomic Energy of Canada
- ❖ Aecon Group
- ❖ Areva
- ❖ Argonne National Laboratory
- ❖ Babcock & Wilcox
- ❖ Bruce Power
- ❖ Bechtel
- ❖ Entergy
- ❖ Exelon
- ❖ Fluor
- ❖ Furmanite
- ❖ FMC
- ❖ Parsons
- ❖ Progress Energy
- ❖ SGT, Ltd.
- ❖ Shaw
- ❖ TVA Tennessee Valley Authority
- ❖ Westinghouse Electric Company

Complete Support ultimately means there are very few machining projects we can't help with. And while we build Superior Equipment, just as importantly we build relationships. To learn more about Superior Equipment. Complete Support. call your Wachs representative, email us at [info@ehwachs.com](mailto:info@ehwachs.com) or visit us online at [ehwachs.com](http://ehwachs.com).



# ONSITE MACHINE TOOLS

E.H. Wachs offers a wide range of portable weld prep machine tools that have been successfully used in nuclear power plants around the world. Available for sale or rent, every Wachs machine uses a precise, cold cutting machining process that produces highly repeatable results. Easy to set up and operate, they deliver fast preps and an even faster ROI.



## SPLIT FRAMES

The split frame is a rotating ring machine tool designed to cut, bevel, single point and counterbore pipe, splitting in half for external mounting to inline pipe, or slipping intact over an open end. Shown above is the optional bridge slide for single pointing and flange facing. The platform is the foundation for the industry's most complete weld prep machining system.



## SOCKET WELD REMOVAL

Precision socket weld removal is easily accomplished with Wachs Socket Weld Removal kits. Designed for minimal sacrifice of the base material, pneumatic kits are available in both axial and radial versions to accommodate most clearance issues. Kits are based on and include our 1in (25.4mm) and 2in (50.8mm) SDSF split frames.



## EP 424 END PREP BEVELER

The EP 424 Beveler with the new Speed Prep auto feed system is a precision I.D. mount end prep machine tool designed to bevel, compound bevel, J prep, face flanges and counterbore pipe, fittings and valves. The Speed Prep EP 424 is able to machine any bevel or compound bevel without templates, incline tool slides or work stoppages.



## FME CHIPLESS CUTTING SYSTEM

Wachs FME (Foreign Material Exclusion) is a chipless wheel cutting module to prevent chip debris from being generated and entering the workpiece. A module for the SDSF small diameter split frame, FME is critical in high purity and process applications where the introduction of chip debris cannot be tolerated.



## GUILLOTINE PIPE SAWS

Wachs Guillotine Pipe Saws are reciprocating saws designed to cold cut pipe as well as solid bars, stock, rails and beams. Available in four sizes to fit from 2in-32in (50.8 to 813mm) outside diameters, they can be equipped with remote control auto clamp and auto feed devices for operation in unsafe or hazardous environments.



## SMALL DIAMETER BEVELERS

Strong and versatile, the SDB Series is a line of handheld beveling and prepping machines that deliver maximum power and performance for fast and accurate end preps. These machines prep both pipe and tube, and can face, bevel, deburr, compound bevel and counterbore simultaneously.



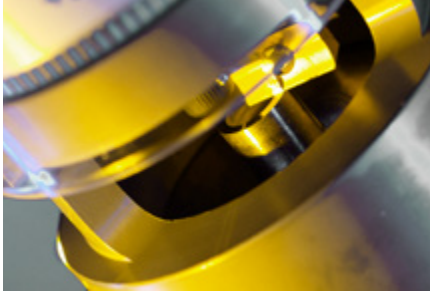


While cutting and beveling pipe and tubes for weld preparation is the most common task of our standard machine tools, E.H. Wachs and Orbitalum products find many usages throughout nuclear power plant component systems, both inside and outside of containment. The chart below matches nuclear plant component systems to product applications.



**FLANGE FACERS**

FF series flange facers are based on the powerful and versatile SDB series of bevelers. Easy to setup and operate by a single user, the FF series feature a quick change mandrel system for fast installation. This system provides simple operation in a lightweight and compact form.



**HIGH PURITY MACHINES**

The Orbitalum full range of products includes pipe and tube cutters, tube facing and squaring tools, pipe end prep machines and sophisticated orbital welding equipment. These superior quality, long-lasting, machine tools and orbital welding systems are vital components of any successful orbital welding program.



**RS-2 VALVE OPERATOR**

With fast operating speeds for quick valve operation, the RS-2 (Rising Stem-2) valve turner/exerciser is designed to accommodate both rising and non-rising stem valves. It delivers powerful torque to tackle large, stubborn or stuck valves. The RS-2 offers a range of adapters to suit most applications.



Plant Components	Product Applications									
	DYNAPREP MDSF & LDSF	SDSF	Socket Weld Removal	Guillotine® Pipe Saws	EP 424	SDB	FF	RS2	High Purity Machines	Engineered Products
Condensate Storage Tanks	✓					✓				
Heater Drain Systems		✓	✓		✓	✓		✓		✓
High/Low Pressure Coolant Injection	✓	✓			✓	✓	✓			✓
Hydrogen Off Gas Systems					✓	✓				
Instrument Lines		✓	✓			✓			✓	
Main Steam Piping	✓	✓		✓	✓	✓		✓		✓
Pressurizer Nozzles	✓				✓	✓				
Feed Water System	✓				✓	✓				✓
Reactor Recirculation Piping	✓				✓	✓				
Safety Injection System		✓			✓	✓				
Steam Generator (SGRP)	✓				✓	✓	✓			✓
Turbines	✓	✓	✓		✓	✓				✓

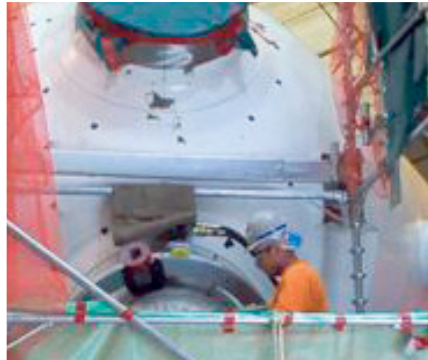
# NUCLEAR PROJECTS

E.H. Wachs machine tools find many uses in nuclear power plants for construction, maintenance, power uprates or decommissioning. Shown here are a few examples of our products at work, giving an indication of their versatility. Wachs machine tools deliver precision results onsite previously only available off site, saving valuable time and money on maintenance and outages.



## BELLOWS EXPANSION JOINT REPLACEMENT

Condenser bellows are subject to corrosion and fatigue, and during replacement are often upgraded to stainless steel. Replacement may be complicated by location or limited access for machining. E.H. Wachs dynamic modular low clearance split frame equipped with out of round spring slides is the ideal machining solution to maintain the tolerances required during cutting and beveling, delivering a consistent land for welding.



## STEAM GENERATOR REPLACEMENT LEG MACHINING

During steam generator replacement, the hot and cold legs require precise cutting and beveling prior to installation of the new SG. The Wachs split frame accessorized with a bridge slide are ideal for this application, as the split frame will mount and align to the existing nozzle. The bridge slide attachment allows single pointing to create a precise compound or J prep bevel prior to welding.



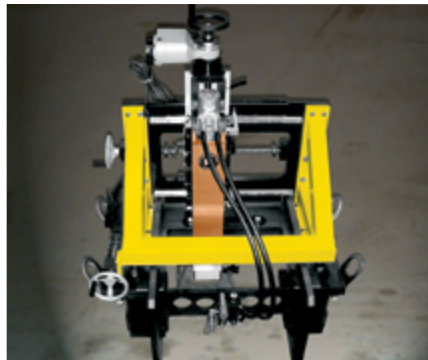
## SOCKET WELD REMOVAL FLOW ACCELERATED CORROSION

When a fast, simple method of removing the weld material between the socket and piping in a radioactive environment due to flow accelerated corrosion is required, Wachs SDSF based socket weld removal system is ideal. It removes minimal material, leaving the socket or piping in a reusable condition. The SDSF split frame adds the ability (with accessories) to cut and bevel perfect weld preps.



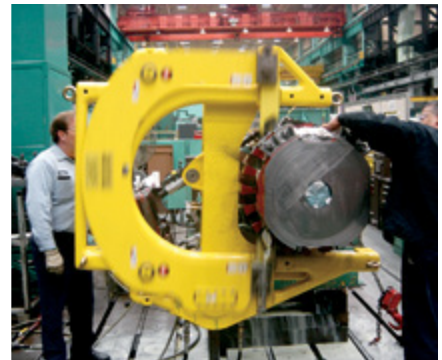
## MAIN STEAM & FEED WATER PIPE & VALVE REPLACEMENT

An efficient and cost effective method of pipe and valve replacement can be critical in a time sensitive outage. Wachs I.D. mounted beveling machines such as the SDB series and EP 424 (pictured) are ideal for machining elbows, tees, valves and performing precision end preps. With accessories these machine can perform precision flange facing.



## STEAM GENERATOR KEYWAY SLOT MACHINING

During steam generator replacement, keyway slots may be irregular in flatness. Prior to installing the new generators, the keyway surfaces may require machining to the "best possible" flatness condition while removing minimal parent material. E.H. Wachs keyway slot machine is custom designed and built specifically for this unique application.



## STEAM TURBINE SHAFT MAINTENANCE

E.H. Wachs products are versatile and adaptable to many machining projects. Pictured is a Guillotine Pipe Saw that made multiple cuts onsite on a hardened steel steam turbine shaft. In addition to cutting pipe, it's suitable for cutting solids such as bars, rails and shafts and is available with remote control options for cutting in hazardous environments.



E.H. Wachs Engineered Products division designs and manufactures semi-customized and fully customized machines and products built for a specific application or project. Partnering with many of the industry's leading firms we've created products ranging from simple adaptations of standard tooling and machines to the most complex systems.



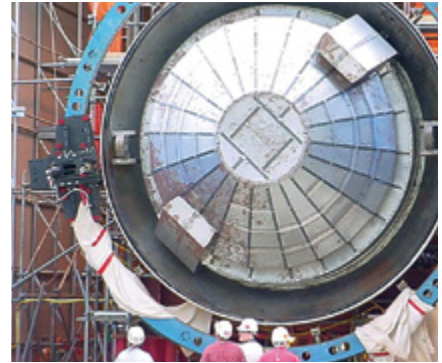
### PLANT DECOMMISSIONING REACTOR SECTIONING

Engineered Products is expert in creating products used in nuclear plant decommissioning, both inside and outside containment. Pictured is a girth style machine designed to perform an internal cut through six inches of hardened material creating manageable sections. Many standard products can be modified for specialized decommissioning purposes.



### STEAM GENERATOR REPLACEMENT MACHINING

At Callaway Nuclear Station, the steam generator flange pedestals and bearing surface pockets required onsite machining to match the tolerances of the existing column elevations. We designed and manufactured a machine featuring a shell mill cutting module integrated with an extended tube sheet clamp and a drop deck interface support table that allowed precise positioning of the milling module.



### STEAM DRUM GIRTH CUTTING AND WELD PREP

At Millstone Unit 2 Nuclear Power Station, Wachs created two custom large diameter split frames for cutting the girth of the replacement steam drum. This very large girth device split into four equal quadrants for easy transport and installation. Built rugged enough to section and prep the drums 6.54in (166.1mm) wall thickness, the machine included twin opposing tool carriers and 12 integral clamping pads for fine positioning.



Wachs offers a wide range of rental solutions, from daily, weekly or monthly rentals, to our innovative new WachsBox™ program.

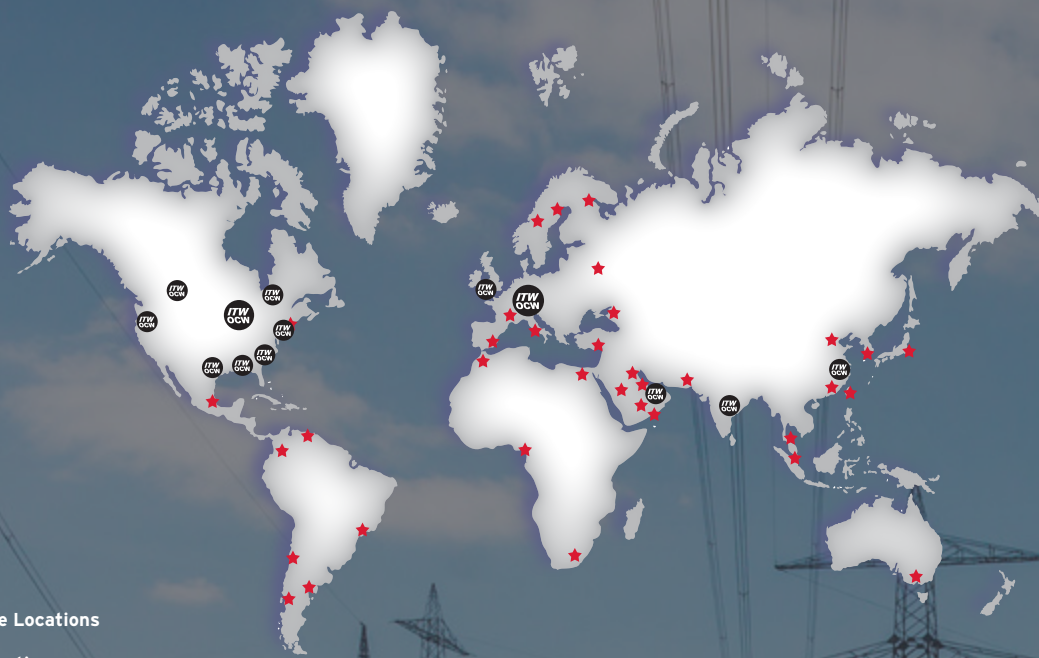
Rentals are a great option for short term projects, where machines are used for a unique or one time job. But Rentals can also be a smart option for larger, major projects, where you need pipe cutting, beveling and flange facing machines day in and day out, often 24/7. For this scenario we invented the Wachs Box.

The WachsBox is a pre-stocked Conex delivered to the jobsite, preconfigured to your project needs, that remains onsite during your active field machining.

### Superior Equipment. Complete Support.™

Contact your local E.H. Wachs representative when planning your next outage or maintenance event. See how Superior Equipment. Complete Support can power your organization to increased productivity and decreased downtime.





**ITW OCV Corporate Locations**

**★ Sales Locations**

Contact your local ITW Orbital Cutting & Welding representative for additional information or to request a product demonstration.

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