

Hydroform and Structural Frame Automation: Products, Systems and Capabilities Overview

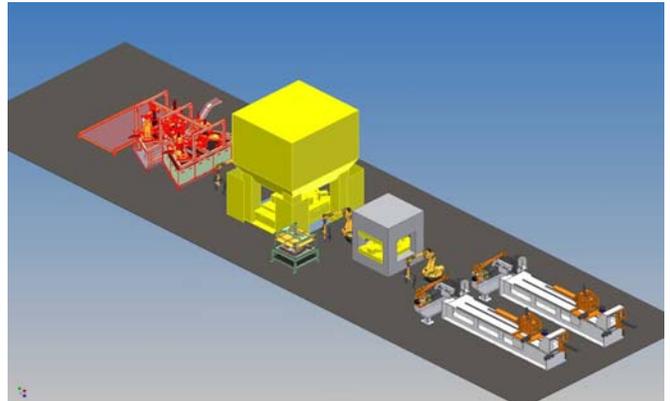
***Automation solutions from
Wayne Trail combine
performance and quality . . .
with value***

Wayne Trail provides automation for tubular hydroformed or conventionally designed structural frame components. This includes robot and press integration, turnkey systems, stand alone modules, upgrades and retrofits.

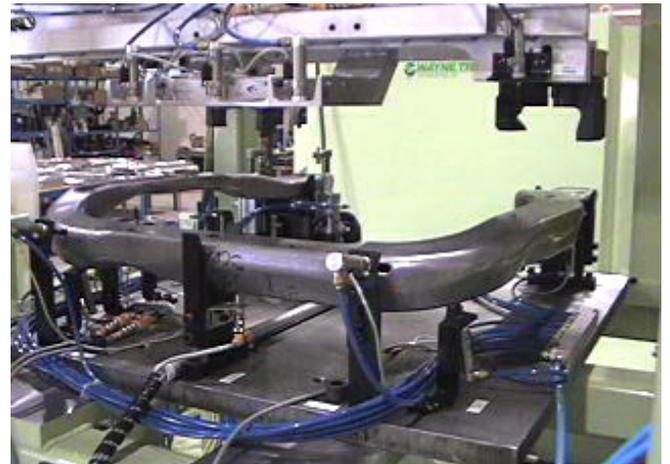
The use of tubular hydroformed components in automotive applications worldwide is increasing with each new model launch. Frames, structural members and suspension components made using the hydroform process provide greater rigidity and strength compared to their traditionally welded counterparts.

Hydroform technology provides automotive engineers exceptional flexibility when considering designs and performance requirements for future vehicles. This flexibility however, is only viable when the manufacturing process that supports it can be performed effectively and economically. Automation solutions from Wayne Trail are helping today's manufacturers attain their performance goals.

We hope that the information found in this brochure will provide an interesting overview of the products, systems and services available from Wayne Trail that support the growth of this rapidly developing market.



Wayne Trail design engineers produce advanced 3D simulations for easy visualization of hydroform machinery and tooling to verify concepts and designs before manufacture.



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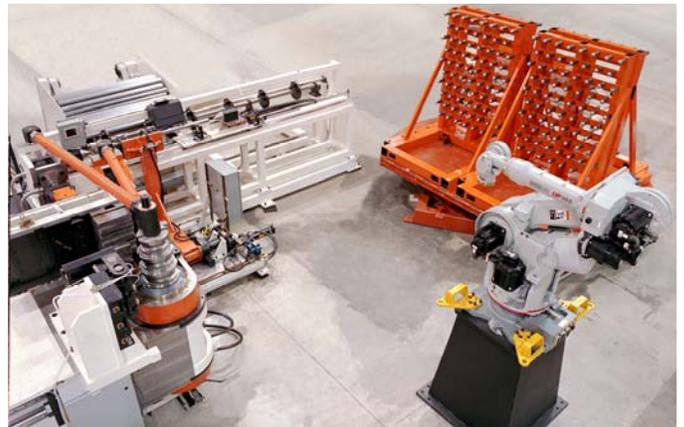
Loaders, Benders

Quality must be present from the very start of any successful manufacturing process. On most hydroform and structural frame systems, this entails a CNC type bender and related automation in what is often referred to as the 'pre-bend' or 'pre-hydroform' portion of the production line. Wayne Trail provides benders and automation specifically designed for these functions.

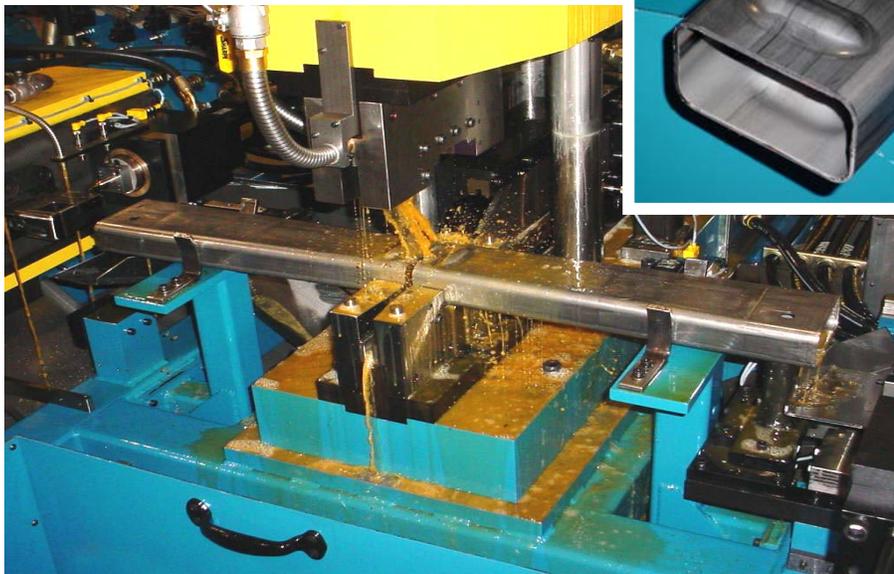
Stand-alone programmable benders, or complete bend systems are available in a variety of sizes to accommodate tubes ranging from 1" to 6" in diameter.

Typical automation includes a debundler and a weld seam detector/positioner. Debundlers can be of the hopper-conveyor type, strap type or overhead magnetic pick and place. Camera based vision systems are used as standard for weld seam detection. Magnetic, eddy current or fiber optic systems are also available.

Tubes can be moved through these modules with a transfer or robot depending on customer preference or application requirements.



Shearing, Trimming, Punching, Piercing . . .



After a tube has been hydroformed, additional steps are required to prepare the part for further processing or use. This series of steps begin what is usually referred to as the 'post-hydroform' portion of the manufacturing process.

End shears, center shears, trimming, punching, piercing, laser cutting, end sizing, poke yoke, washing and marking are all common processes typically provided in this section of a Wayne Trail post-hydroform system. These processing steps can be completed individually or in combination within modules that are custom designed for a specific family of parts.

With an ever increasing variety of shapes, wall thicknesses and metallurgical properties being specified for the tubular shapes that will be hydroformed, Wayne Trail's experience in tool design and build provides a strong background when developing the modules and processing steps required to address this critical portion of the process.

Unloading, Transfer and Racking



One of the common threads to all Wayne Trail markets and systems, is material handling. Whether we are processing parts in a stamping press, underbody or seat-back tubes in a Flexbending® cell, or hydroformed tubes in a hydroform/structural frame processing system, Wayne Trail has the correct handling solution for the application.



High performance part transfers are supplied for all automated pre- and post-hydroform systems. Transfers and lift units can be servo, hydraulic or pneumatically driven – depending on through-put and application requirements. Tooling is customized for each process module within the system.



Robots and end-effectors for press loading and unloading, or end-of-line conveying, racking or stacking operations can be supplied and fully integrated by Wayne Trail.

Control and System Integration

Hoppers, benders, lubricators, pre-form presses, hydroform presses, robots, post hydroform processes, racking systems . . . Integrating all these items into a functional hydroform system can seem to be a daunting task. It doesn't need to be! Wayne Trail can provide a total system solution, custom designed for your needs and budget.



Total system design can be provided, accurately locating all line components. Master line control provides a central point for monitoring of all system modules. Interlocked barrier guards provide for operator safety. Scrap is directed into a central conveying system and removed outside the system guarding. Hydroform fluids are contained within the system for cleanliness and safety. Full installation service is available to rig, wire and start-up your complete system.



Facilities

With over 120,000 sq. ft. of office, manufacturing and assembly space in multiple buildings, we are located in Fort Loramie, Ohio, close to the Interstate I-75 corridor, and within easy driving distance of several major airports.

All of the technical disciplines at Wayne Trail, from marketing and sales, program management and engineering design, to purchasing, machine shop, tool build and field service - are dedicated to the success of our customers and fully meeting or exceeding their requirements and expectations.

Installation and Start-Up Services



Wayne Trail offers expert installation and start-up support for every system we supply or service. From simple supervision and training, to complete turn-key installation, our field service team is available and eager to help you bring your system up to full production capability. Services we can provide include shipping and logistics, foundation prep, rigging, wiring and piping, area barrier safeguarding, site supervision, production support and more. We also supply system integration services for larger complex lines that require significant coordination between 3rd party vendor supplied equipment or existing, in-place processes. Our know-how and experience makes us the perfect partner for your next project.

Product Support



From the time you first implement your process, to re-tooling or reconfiguration needed to adapt a vintage system to new requirements, Wayne Trail product support is there to help. We provide engineered spare part packages to protect your up-time, and can recommend upgrades that will improve your productivity.

Our service team can also arrange for system relocation, on-site refurbishment or factory rebuild service when required. From warranty needs, to preventative maintenance and replacement parts – our service department is on call 24/7 to provide you with timely and effective product support.