



## Pressure Vessels at YORK Refrigeration Systems

YORK produces a complete line of standard refrigeration vessels and recirculator packages, any of which may be tailored to meet your specific application. These items are fabricated using contemporary processes guided by a skilled and experienced workforce.

All pressure vessels and heat exchangers meet ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, and all recirculator packages meet ASME B31.5, Refrigeration Piping and Heat Transfer Components.

### History

In 1853, millwright George Frick created the Frick® Company to manufacture steam engines, boilers, threshers and sawmills. The first Frick® ammonia refrigeration unit was installed in Baltimore in 1882, initiating an industrial refrigeration leadership tradition. Frick® Company was an early adopter of the ASME Code and was the 142<sup>nd</sup> company to be issued a U-stamp for boilers and pressure vessels. Today, less than a handful of companies have held an active U-stamp longer. YORK International acquired Frick® Company in 1987.



### Sales

Frick® Factors, strategically located throughout the US, have extensive refrigeration knowledge and are available to size and price complete refrigeration systems or individual refrigeration components for your unique application. Factors have access to a talented and experienced in-house Application Engineering group for additional problem solving and quoting resources.

### Plant

The Waynesboro, Pennsylvania plant has approximately 100,000 square foot dedicated to pressure vessel, heat exchanger, and recirculator fabrication and packaging assembly.





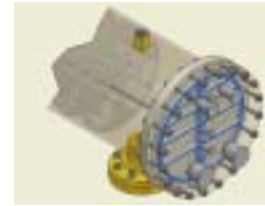
## Design/Engineering

Heat exchangers are thermally designed using YORK developed software that performs sophisticated analyses not found in commercially available thermal design software. These algorithms have been developed and refined over the past 30 years.

Mechanical design software includes Codeware's Compress and Exchanger packages, Bentley's AutoPIPE, and numerous proprietary analysis routines to ensure accurate and timely solutions.



Industry leading solid modeling is used to layout and design vessels and recirculator packages. 3D technology provides immediate interference checks to prevent shop floor delays. Automated bill-of-material creation reduces cycle time. Complete association between model and auxiliary views reduce drawing errors and speed drafting. Parametric features allow rapid turn-around for customer specific requests. 3D views further clarify the typical 2D documentation and reduce time necessary for full design comprehension. CAD output data is particularly helpful in manufacturing of tubesheets, baffles, gaskets, and shells where it is utilized directly to drive cutting and machining tool paths, thus eliminating redundant drafting and accelerating the entire order to ship process.



## Manufacturing

Our numerically controlled **plate burner** with both plasma and oxy-fuel cutting capabilities has part nesting, plasma scribe/marketing, hole burning, stitch cutting and beveling capability that permit efficient use of plate while reducing manual labor and improves quality after rolling. Flat patterns that incorporate layouts are often created from actual 3D CAD files, thus reducing transfer errors and shortening lead-time.



*MG Industries Plate Burner*

In-house **rolling** capability ensures quality and timely delivery.



*Webb Plate Rolls*



High speed **submerged** arc welding equipment with a direct view vision system ensures consistent quality welds on longitudinal and circumferential welds.

*Pandjiris® SubArc*

A 5-axis CNC **pipe burner** is used to bevel shells and constant circumferential bevel angles for holes in pipe shells < 24” diameter and formed diameter plate shells ≤ 48” diameter. This “automation” further improves quality by reducing error through careful programming and eliminating the archaic, error-prone, time-consuming manual nozzle layout step.



*Vernon Tool CNC Pipe Burner*

Vessels and packages are **tested** in accordance with applicable Codes. A full-time Authorized Inspector witnesses all tests. A newly installed hydrostatic test system ensures vessels are thoroughly dried prior to shipment by forcing extremely dry air through available nozzles. Most vessels and packages are shipped with a nitrogen charge to further ensure cleanliness and dryness during transport.

The **shot-blast** booth has an automated particulate recovery system to ensure the high quality surface finish necessary for long term paint adhesion.

Vessels are **painted** with a high quality, rust preventive paint prior to shipment. Local and national **carriers** help ensure on-time delivery.

Since 1999, pressure vessel U-1A data has been registered with the National Board via Electronic Data Transfer. For convenience, copies of the actual **Manufacturer's Data Report** are electronically transmitted to the end user (or customer).

## Quality

Vessels and packages are meticulously inspected to ensure quality and purchase order compliance. Common inspection methods include visual (VT), liquid penetrant (PT), and radiography (RT). VT is further improved with the aid of an Everest VIT video borescope that has light, flash, comparison measuring, and recording capability. As one can imagine, this device is extremely beneficial during inspection of internal nozzle welds on small diameter equipment.



*Video Probe*

Quality is further dignified by having ISO 9001:2002 certification, holding R, UM, and U ASME Stamps, and Chinese SQLO. Canadian Registration is available upon request.