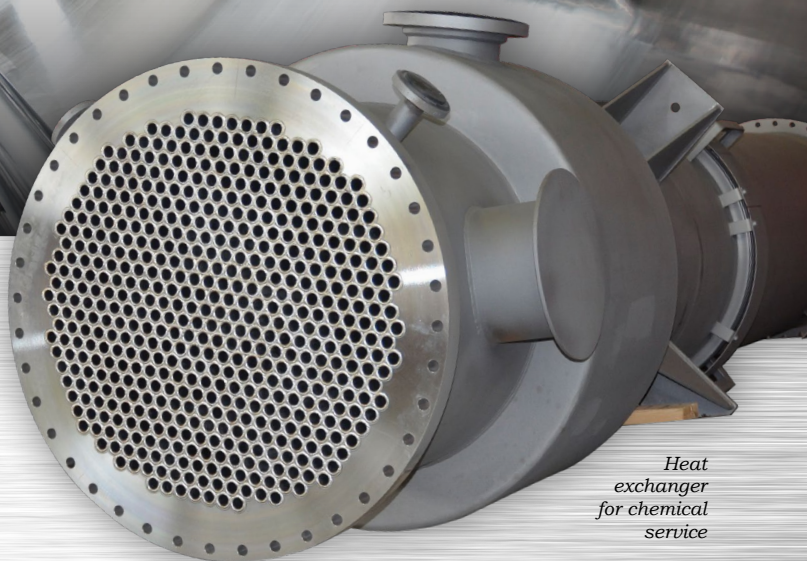




INNOVATIVE IDEAS WITH
CUSTOMIZED SOLUTIONS



10 Ra. Max Polished Clad Reactor

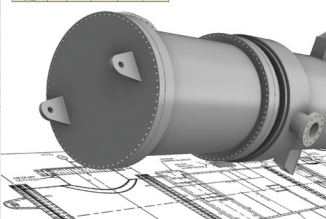


*Heat
exchanger
for chemical
service*

ENGINEERING – “CENTER OF EXCELLENCE”

- A highly trained and skilled Engineering staff with two licensed Professional Engineers in the group.
- Engineering and Estimating Departments well equipped with all of the latest software available for design work (Compress, PVElite, Aspen Shell and Tube (thermal and mechanical), Nozzle Pro for FEA, Inventor and AutoCAD).
- “Fabrication Engineering”—Our proprietary software that handles your project from order entry through shipping ticket which allows for streamline fabrication of heat exchangers and pressure vessels. The initial development started in 2000 allowing us to auto generate bill of materials from our code calculations while providing functionality to all parts for proper material preprocessing on the shop floor.

| CONDITION | NORMAL | START UP | SHUTDOWN | UPSET #1 | UPSET #2 |
|--------------|--------|----------|----------|----------|----------|
| NOVAL DEV. | 0.00% | 0.13% | -0.13% | -0.26% | -0.40% |
| SHR. (NOM) % | 300 | 32 | 518 | 518 | 518 |
| TUBE (NOM) % | 341 | 126 | 324 | 213 | 124 |
| TOTAL DESIGN | 300 | 300 | 300 | 300 | 300 |



From Concept to Completion.

CUSTOMER BENEFITS FROM OUR “FABRICATION ENGINEERING”

- Estimating and Engineering departments that are well staffed and equipped to handle all of your needs from small projects to multi-million dollar projects.
 - *Quick and accurate turnaround on budget and/or firm quotes.*
 - *Unrivaled fast track project capabilities and response times.*
- Shorter overall lead times on custom engineered equipment.
- Competitive prices with the highest quality that you can rely on.

PRODUCT OFFERINGS

DESIGN & FABRICATION

- ASME Code, Section VIII, Div. 1, TEMA and API
- ASME U & R Stamp
- Heat Exchangers
- Reactors (half-pipe, conventional and dimple jackets)
- Columns
- Pressure Vessels
- Storage Tanks
- Mix Tanks
- Polished Vessels (up to Super Mirror #8 w/ electro polishing)



Column
with Heat
Exchanger
Trial Fit-Up

QUALITY CONTROL

LEVEL III AND LEVEL II INSPECTORS

- CWI and AWS Certifications

IN-HOUSE CAPABILITIES / EQUIPMENT

- Positive Material Identification (Niton Nuclear Analyzer)
- Helium leak detection (Pico mass spectrometer)
- Radiography
- LP (dye penetrant testing)
- MT (Mag particle testing)
- Etching and polishing of weld joints/ mockups

COMPREHENSIVE NCR SYSTEM

- Internal tracking
- Supplier tracking

SHELL AND TUBE HEAT EXCHANGERS

- ASME Code, Section VIII, Div. 1
- TEMA class B, C & R
- Shell and Tube
- Retubing and repair
- Fixed Tube sheet design
- Floating Tube sheet design
- U-tube design (Removable Coils)
- Bayonet Type Heaters / Coolers



(2) 2205 Duplex Stainless Heat Exchangers

MATERIALS OF CONSTRUCTION



Alloy 600
bundle

- Over 200 weld procedures (GTAW, SAW, FCAW, GMAW and SMAW)
- Carbon Steel (SA-36, SA-516-70)
- Chrome Moly
- Stainless Steel, solid and clad (304L, 316L, 317L and 904L)
- Duplex and Super Duplex Stainless (2205 and 2507)
- Hastelloy (B2, B3, C22, C-276 and C-2000)
- Nickel Alloys (nickel, monel, inconel, alloy 20, AL6XN and others)



Half-pipe reactor with coverage over entire head

HALF-PIPE REACTORS

"The Half Pipe Specialists"

Our process offers the following benefits;

- Improved "Quality" and "Reliability" by eliminating shell side butt joints.
- Utilization of a compression fit with a twin head sub-arc welding process that eliminates tack welds during fit up.
- Reducing/eliminating the stops and starts during welding to further enhance the weld quality and jacket reliability.
- Precise fit-up of bottom head half pipe (180 deg. Segments) to ensure that all butt joints are in a line for easy maintenance and inspection purposes at your facility.
- Wide range of sizes (2", 3" and 4") to meet all of your cooling and heating needs.
- 4" half pipe can be installed on 5.5" pitch providing optimum heat transfer efficiency.
- Quality that can be surpassed by NONE.
- A big "Thanks" from your Reliability Engineer!

+ *Over the years, Ward Vessel & Exchanger has been awarded "Supplier of the Year" awards from BASF, Day & Zimmerman, Albemarle and Eastman Chemical as well as "Product of the Year" awards from Coade and the Steel Tank Institute, and more.*



CHARLOTTE, NORTH CAROLINA, USA
HOUSTON, TEXAS, USA

704 568 3001 | sales@wardve.com

www.wardve.com



OUR SERVICES

- Complete Water Treating System
- Lime Coagulation Systems
- Direct Filtration System
- Reaction And Settling Tanks
- Control Panels
- Single And Multi-Media Filters
- Activated Carbon Purifiers
- Manifolds
- Underdrains
- Holding Tanks
- Chemical Feed Systems
- Reverse Osmosis Technology
- Stainless Steel Purifiers
- Agitators
- Pumps
- Valves
- Fittings
- Polishing Filter Housings
- Membrane Technology
- UV Water Sterilizers
- Ozone Water Sterilizers
- Chlorinators



OUR SERVICES

All our services are available in our shops or in your facility:

- In-Place Machining
- ASME Code and Non-Code Welding
- R Stamp Alterations and Repairs
- Heat Treating
- Turnkey Pressure Vessel/Heat Exchanger Removal and Installation
- Heat Exchanger Repair and Maintenance



CHARLOTTE FACILITY



HOUSTON FACILITY

• TWO FABRICATION FACILITIES

- Charlotte, NC and Houston, TX with sales offices in Baton Rouge, LA and Jefferson, NJ
- Over 80,000 SF (Five separate bays including two S.S./Nickel Alloy only bays)
- Tonnage: (5) 20 ton, (4) 15 ton and (2) 10 ton overhead cranes
- Fully equipped machine shop with three state of the art CNC machining centers
- Large vertical boring mills to ensure proper handling of all your equipment needs in house
- Our Houston, TX facility offers 30 feet under hook and can fabricate up to 20 feet in diameter, 200 feet in length and up to 400,000 lbs.