

**TF** TAYLOR FORGE  
ENGINEERED SYSTEMS



# Engineered Solutions

Starting with a collaborative, consultative approach, we work to understand the unique needs of a project in order to deliver the best solution.

## Our Value Added Process For All Products

### Concept

- Consulting on Code & Design Factors
- Weight & Space Optimization
- Conceptual Designs
- Preliminary / Budgetary Pricing
- Delivery Timeline
- Designer / Customer Collaboration

### FEED

- Finalize & Optimize the Sizing, Design, Budgets & Timing

### Design

- Designed Using Extruded Connections Saving both Space & Cost
- Detailed Design Phase
- CFD Analysis for Flow/Pressure
- 3D Modeling & Flow Analysis
- Process Guarantee & Performance Guarantee
- Mechanical Design, Pipe Stress, Foundation Loads (early in the process for civil/owner planning)

### Manufacturing

- Minimize Field Construction Cost with Prefab Components
- Minimize Field Welding
- Quality Controlled In-house Fitting Mfg
- Optimize Shipping Configuration
- 100% X-Rayed Welds

### EPC / Install

- Supervised Final Completion for Assured Performance Guarantee
- TFES Owned Project Lifecycle
- Continued QC thru Commissioning

# Our Core Products

## Slug Catchers

We efficiently design 2-phase or 3-phase separation ahead of your processing facility. The proper design of this critical piece of equipment will ensure the consistent and efficient operation of the facility. By designing for pigging and transient slugs to arrive at the full gas flow rate, you are assured of meeting current and future processed needs.



Pipe Type Slug Catcher

### Pipe Type Slug Catchers

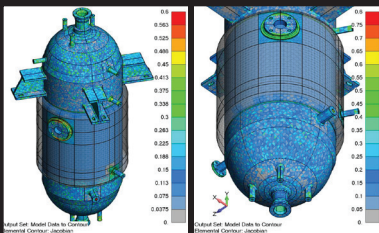
Also called "Harp Type" or "Finger Type". Very flexible design with almost unlimited capacity potential. Units have been installed over 4 BSCFD of gas flow and over 50,000 bbls (8,000 cu m) of liquid storage. Plot space limitations can be optimized. Turnkey scope including installation is available.

### Vessel Type Slug Catchers

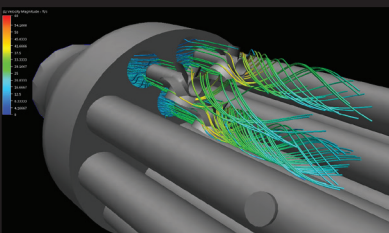
Vessels are the economical choice up to approximately 1000 bbls (165 cu m) of liquid storage. They are typically installed without process internals in slugging applications. Vessels can be designed to ASME Sec VIII Div 1 or 2.



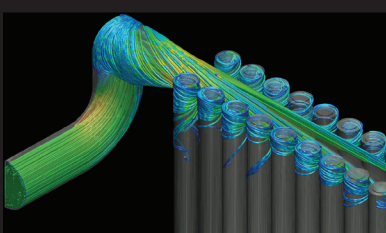
Fatigue analysis model.



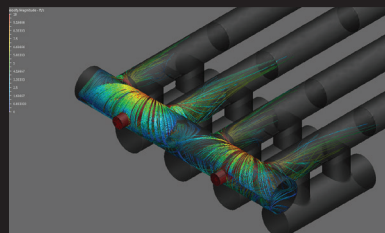
Vortex Tube Bundle CFD test model.



Vortex Cluster CFD test model.



Slug Catcher test model.





*Pipe Type Slug Catcher with Vortex Tube Scrubber. By listening to the specific needs of our client, our design team provided them with a customized solution to their gas/liquid handling and storage challenges.*

## Vortex Technology Separation

By utilizing our unique Vortex Technology separation elements, very high separation efficiency can be achieved (down to 1 micron particles). Using this technology can result in vessel size and weight reductions up to 30%. It can also be retrofitted into existing separators where gas flows need to be increased or operating pressures have dropped.

## Extruded Outlets & Headers

The engineered Extruded Outlet provides superior strength by moving the weld away from the highly stressed area and eliminates fatigue cracking from cyclic or thermal loads. The advantages also include flexible configuration of all sizes to maximize cost savings in welding, field fabrication, material usage, and space and weight savings.



Heat Exchanger Bundle



Extruded Outlet

## Shell & Tube Heat Exchangers

Our 53,000 sq. ft. state-of-the-art fabrication facility focuses on process and heat transfer packages. Our dedicated In-House Thermal Design and Engineering team will design to the latest requirements including HTRI, TEMA "R", "C", and "B", as well as, API 660 standards. Our heat exchangers, condensers, reboilers, and evaporators will be fabricated to the highest level of quality standards for our customers peace of mind.



Extrusion Process

## Scraper Traps

Scraper traps, or pig launchers and receivers, have been fabricated from 6" line size up to 60" and pressures up to 15,000 psi. With the application of extruded outlet connections, a safe, low stress fabricated assembly provides peace of mind to owners and extended operational life. Quick opening closures of any style or manufacture can be included. Modularization of an entire pigging package can also be provided.

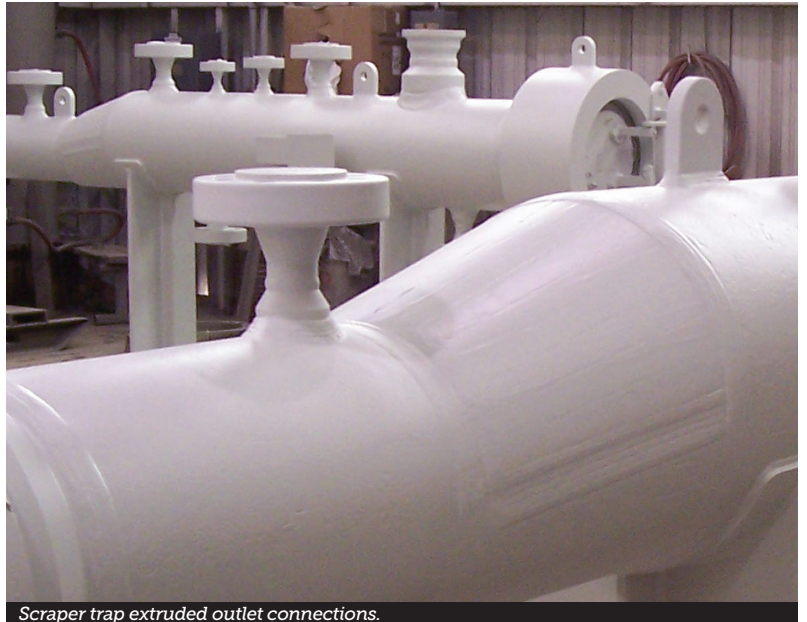
## Pressure Vessels

Taylor Forge has supplied pressure vessels into many different applications for over 70 years. With ASME U, U2, S and National Board R certifications, we have been an experienced and influential leader in energy and industrial markets.

We also specialize in high pressure gas storage vessels for the Aerospace Industry. We have the resources to provide large storage volumes in a relatively small diameter with a heavy wall configuration, saving space and maintenance.

## High Strength Material Technology

Over the years Taylor Forge has been an innovator in the development of advanced grade forging materials for use in critical, high pressure applications requiring high strength, excellent toughness, good weldability, and sour service compliance aimed at maximizing value for our customers.



Scraper trap extruded outlet connections.



70 years of pressure vessel design and installation experience.



30mm ESW Overlay in 10" pipe.



Harp Type 9000 Barrel 12-Finger Slug Catcher



Aftercooler Manifold

# Engineered Value

We tailor our custom layout and fabrication to suit the exact needs of your application. Taylor Forge is dedicated to engineering value into every project we touch.

- **High Quality Designs lead to High Quality Products**

It all starts with collaboration, planning, design details and implementation at the highest engineered level.

- **Industry Recognized Process Guarantees**

Because of our designs and deliveries, we are the industry recognized leader.

- **Metallurgical Excellence**

Our expertise in metallurgy and welding has been crafted and engineered for over 100 years.

- **Welding Technology is our Science**

The most advanced welding experts in our field. We perform R&D, certified testing, and have qualified over 1,000 welding procedures.

- **Fluid Dynamic Flow Analysis and Structural Design**

We invest in the best software and personnel to understand, test and provide design excellence.

 **TAYLOR FORGE**  
ENGINEERED SYSTEMS



## Engineered Products Line

### Slug Catchers

- Harp / Finger / Pipe type
- Vessel type
- 2 & 3 phase separation

### Fabricated Assemblies

- Scraper traps, launchers/receivers (utilizing extruded outlets or fabricated from pipe and fittings)
- Pulsation bottles (extruded per DOT/B31.8 or ASME stamped)
- Slug catcher assemblies (modularized shipments or field assembled manifolds)
- Drip assemblies
- Valve settings

### Shell & Tube Heat Exchangers

- HTRI thermal ratings
- RCS mechanical design
- TEMA design and construction
- Certifications: ASME U, S and National Board R
- 6" to 120" diameter shells

### Pressure Vessels

- Certifications: ASME U, S and National Board R
- Vortex separators
- Vortex scrubbers
- Slug catchers
- High pressure gas storage

### Commitment to Quality

In addition to our ASME and National Board Certifications, Taylor Forge - Paola, KS is ISO 9001 Certified.



### Extruded Outlets & Headers

- Single and multiple outlet headers (run size 12" and larger, outlet size 2" and larger)
- Flow tees
- Meter header assemblies
- After-cooler manifold assemblies
- Pipeline and station piping components
- Extruded headers per MSS-SP-75

### Vortex Technology Separation

- Vortex separators
- Vortex scrubbers

### Miscellaneous Offerings/Materials

- Weld overlay (316L/625)
- Pulsation bottle repair
- Partial material list:
  - Carbon steel
  - High strength low alloy
  - Stainless steel
  - Duplex and super duplex
  - 1-1/4 Cr, 2-1/4 Cr, 9 Cr
  - Nickel alloys

### World Headquarters:

208 N. Iron Street  
Paola, KS 66071  
(913) 294-5331  
[www.tfes.com](http://www.tfes.com)

Please contact our engineers today: [engineered@tfes.com](mailto:engineered@tfes.com)