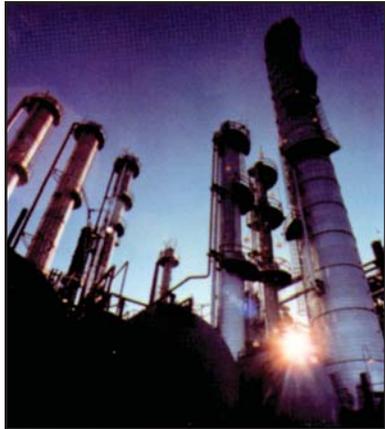


# Extruded Outlet Headers



**TAYLOR FORGE**  
**Engineered Systems, Inc.**



## The Advantages of Closed Die Formed Extruded Connections

Taylor Forge Engineered Systems has been the innovative leader in the manufacturing of extruded connections since 1959. Gas transmission, petroleum, petrochemical and nuclear are some of the industries that have taken advantage of the superior qualities of extrusions. We can adapt our extensive experience in design, engineering, manufacturing, shipping and installation to meet your specific needs. Quality control is a fundamental concern due to the demanding environments in which our headers must perform.



### Superior Strength

By moving the weld away from the highly stressed crotch area of the outlet, an extrusion offers a more reliable, proven connection than a welded-in or padded outlet. Fatigue cracking from cyclic or thermal loads is eliminated in some environments by extruded outlets. The butt weld of an extruded outlet also simplifies radiographic examination.

### Design Flexibility

Extruded headers can offer design advantages unavailable with standard fittings. Outlet configurations can be designed to maximize cost savings or minimize space requirements. Specific specifications to meet stringent code requirements are easily achieved.

### Cost Effectivity

Field labor costs are reduced with extruded headers. Girth welds between outlets are eliminated as are the attachment welds needed with reinforcement pads or welded connections. Because Taylor Forge manufactures both custom headers and a full range of standard fittings, we can recommend the most cost-effective solution to meet your system requirements.

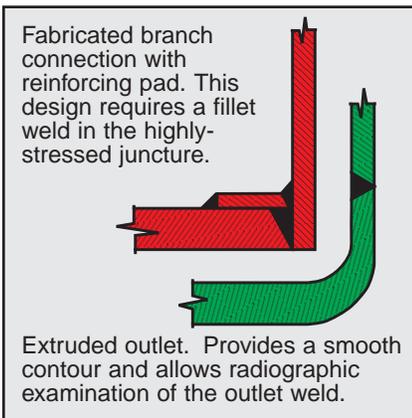


Fig. 1 — Comparison of fabricated branch and extruded connections.

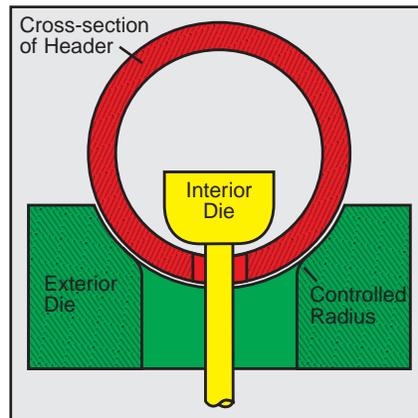


Fig. 2 — Cross-section of a closed-die extrusion process.

## Taylor Forge Quality Assurance

**More years of design and manufacturing experience than any other supplier.**

**Careful raw material testing including in-house destructive and non-destructive testing.**

**Closed die extrusion process assures control of interior and exterior wall shape.**

**Extruded outlets allow for 100% radiographic examination of all welds.**

# Standard manufacturing sequence for high-yield extruded headers and assemblies (per MSS-SP-75)

## MATERIALS

High-yield materials are stocked in standard sizes with gages through 1 3/4". Materials are able to achieve over 65,000 psi minimum yield strength.

The material control department allots materials to each individual order, based upon order requirements and results of qualification tests.

## MATERIAL TESTING

In-house, destructive testing is done on heat treated specimens. The tests that can be performed are:

- Longitudinal and transverse tensile;
- Longitudinal and transverse full-size charpy 'V' notch tests to -50° F; and
- Transverse full-size charpy 'V' notch tests at +20° F.

Special tests for other special properties, or using a different heat treatment are performed when required.

## CUTTING

Materials are cut to size, beveled for longitudinal weld, and serialized for each different item. Serialization is maintained through the entire manufacturing process.

## ROLLING

There are in-house capabilities to either hot or cold roll 1/4" through 7 1/2" thick plates using one of five in-house rolling mills.



## WELDING

ASME Section IX qualified welders are able to produce many TFES procedures.



## EXTRUSION

Elliptical holes are torch-cut and conditioned in locations where extruded outlets are required. Dies are used inside and outside of these holes to control the outlet shape. Header sections are extruded cold or hot depending on exact plate chemistry or requirements. Header sections are annealed prior to cold extrusion. Extrusion may be performed in several stages, with proper heat treatment between operations. Alternately, outlets may be extruded hot, or with a combination of hot and cold pulling.

## HEAT TREATING

When the extrusion process is complete, the headers are either normalized, normalized and tempered, or quench and tempered heat treated. After heat treatment, in-house destructive or non-destructive tests can be performed.



## RADIOGRAPHY

All longitudinal seams are completely radiographed in-house to verify weld integrity.

## STRESS RELIEF

Headers may be stress relieved. Where scraper bars are required, outlets are machined and bars installed prior to stress relief.

## BLASTING

Headers are either shot or sand blasted to a commercial finish.

## MACHINING

All ends and outlets are machine beveled.



## IDENTIFICATION

Headers are permanently marked using low-stress, interrupted dot-type stamps, unless otherwise specified.

## FABRICATION

Header assemblies can be furnished with flanges, pipes, and other fittings welded in position.

## FINISHING

Headers are final-inspected, prime-coated with black enamel or custom painted per customer specification, and prepared for shipment. Beveled ends are protected with end covers for shipping.



Pressure Vessels (Steam Drum)



Extruded Outlets (Air Grid Hub and Arm)



Trap with Patented Closure (Skid Mounted for Export)



Slug Catcher (Offshore Facility Utilizing Headers)



High Yield and Nuclear Tees and Caps



12,000 psi Y-70/Y-80 Scraper Trap Skid



High Yield and Nuclear Reducers and Elbows

Traditionally Dependable



**TAYLOR FORGE**  
**Engineered Systems, Inc.**

208 N. Iron Street  
Paola, Kansas 66071  
Telephone: (913) 294-5331  
Telex: 62192610  
FAX: (913) 294-5337