



FSF **FOOTHILLS**
STEEL FOUNDRY

PIPE SPOOLS PRODUCT GUIDE

ABOUT FOOTHILLS

FOOTHILLS STEEL FOUNDRY

Foothills Steel Foundry have been manufacturing world class wear parts for over **70 years**. We have an exemplary reputation for high quality steel castings, professional service and product support, and **some of the best wear life in the industry**.

Foothills is a proud **family owned and operated** business. Founded in **1947** we have been making cast wear parts for **four generations**.

We are a supplier of **high quality steel castings** for the Mining and Aggregate industry.

We are renowned for our highly developed product line of **manganese wear parts as well as shovel racking**.

We have branch locations spanning across **Canada, USA and Australia** Foothills Steel Foundry can deliver high end manganese consumables with an **industry leading timeline**.

RESEARCH AND DEVELOPMENT

- FSF has been pursuing alloy improvements for over 80 years
- Out of the box thinkers and collaborators with multi industry experience
- Willing to invest in, and pursue alternative alloys or techniques
- Not afraid to make recommendations of superior methods, regardless of supplier or competition
- Large network of suppliers, both domestic and offshore

DEVELOPMENT PRODUCTS

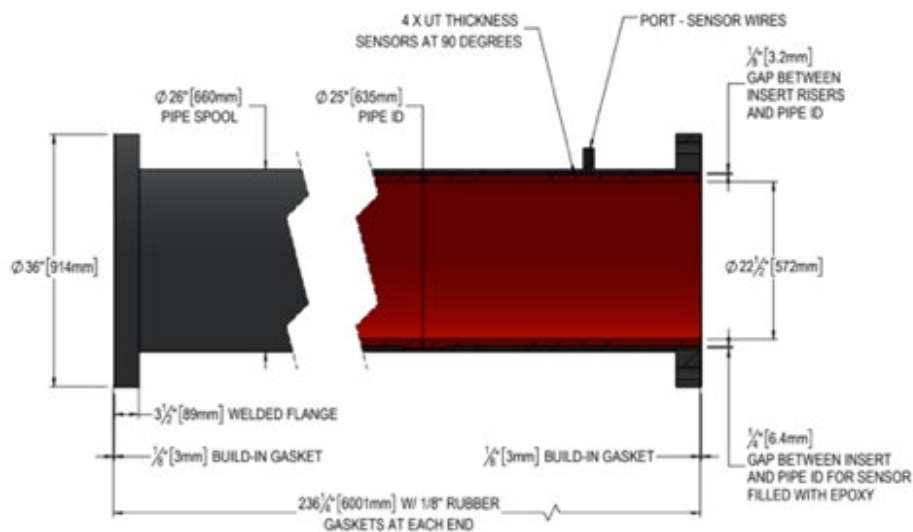
- Pipe Spools
- Centrifigal Cast Pipe Spool Inserts
- Flow T Elbows
- CCO Spool Overlays
- Custom Machining and Fabrication



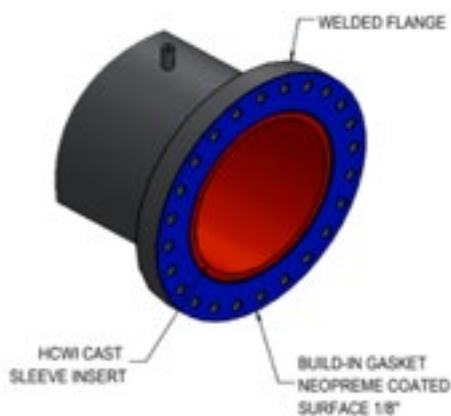
PIPE SPOOL FABRICATION

- Blend of Offshore and Domestic fabrication utilizing Seamless Pipe carbon steel shell (non welded)
 - Better dimensional accuracy over the length of spool
 - Better roundness (no oval shapes)
 - Allows for seamless chrome insert to achieve max thickness (increase insert OD to close the gap between round ID of seamless shell and round OD of insert)
 - Better wear profiles achieved through better concentricity of insert to spool
 - Easier to clean backing material

SPOOL AND INSERT CONCENTRICITY



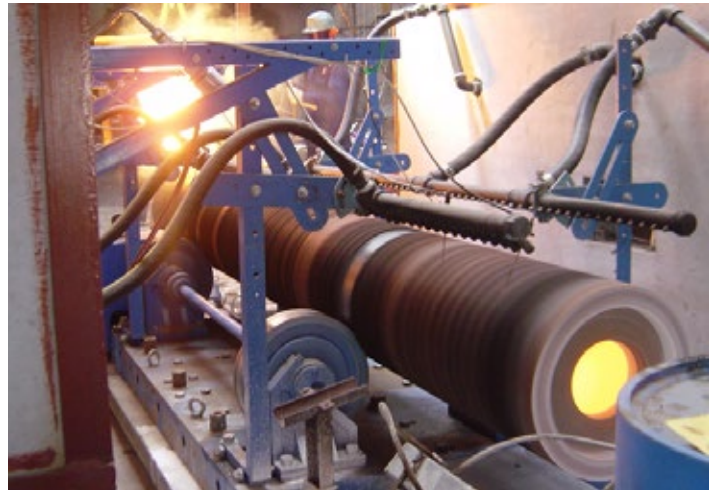
SPOOL FLANGES



- Flanges Sourced offshore through FSF Network, Welding done internally in order to conform to ABSA (Alberta Boilers Safety Association)
- Engineering monitored and controlled by FSF
- All testing done locally per CNRL specification to ensure conformance

CENTRIFUGAL CAST HCWI INSERT

- Centrifugal cast to remove all conventional sand casting defects
- Complete repeatability due to process type
- Combined effort of 3 corporations, off shore and locally in order to manufacture
- Guaranteed to meet or exceed CNRL HCWI specification (same as Cyclone material)
- Large scale wear life improvement vs Neoprene
- Target: overall price within 10% of neoprene lined spools



FSF PIPE SPOOL SENSOR PACKAGE

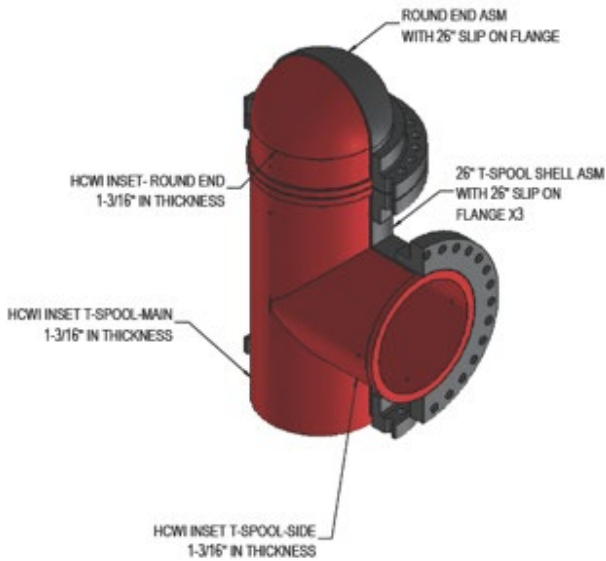
- Developed alongside E2SENSE (recommended)
- Accurately monitor pipe spool insert wear rates
- Daisy Chain capacity on large build out
- Accurately predict pipe turning or replacement
- High cost can be absorbed through savings in other processes (spool fabrication and inserts)



PIPE SPOOL AND INSERT PACKAGE

- Target pricing to be within 5-10% the total cost of neoprene/welded seam spool package, while dramatically increasing spool life.
- FSF design to INCLUDE UT sensor package.

FLOW T PIPE CONNECTION (REPLACES ELBOWS)



- Works on backpressure, creating “slurry on slurry” wear profile
- Utilizes sectioned centrifugal insert
- HCWI “cap” easily removed and replaced
- Already heavily utilized in conventional drilling platforms

CHROME CARBIDE PIPE SPOOL OVERLAYS

- CNC Controlled Open Arc overlay, designed to meet CNRL CCO Specification
- 20' travel capacity
- 36" Diameter pipe Capacity
- Locally installed (FSF Calgary)
- Repeatable through CNC
- Modular design capable of overlays anywhere with power/ventilation capacity
- Purchased December 01 2020
- Installation targeted 1st Quarter 2021
- Target: Min 30% cost saving to CNRL
- Rebuild all welded seam spools while FSF replaces with seamless design





**Response you can rely on
Experience you can trust**

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