



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

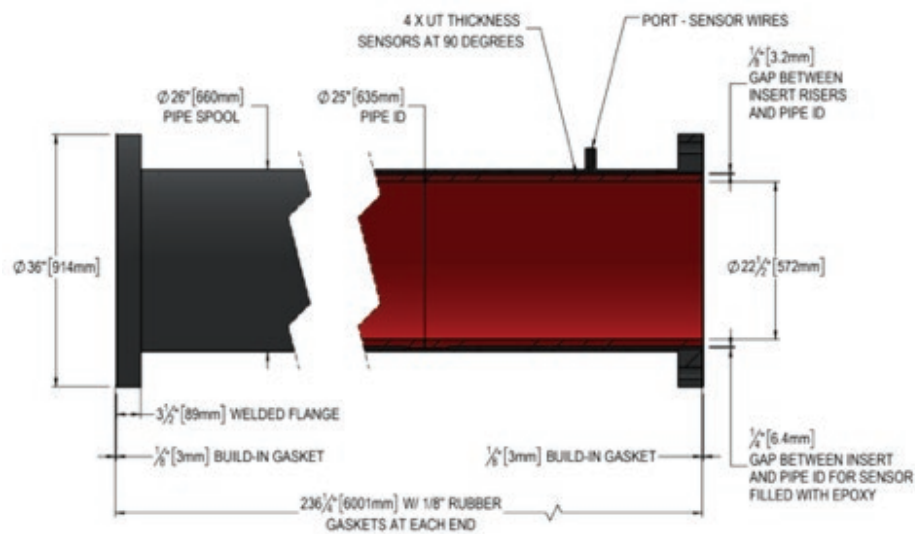
- Pipe Spools
- Centrifigal Cast Pipe Spool Inserts
- Flow T Elbows
- CCO Spool Overlays
- Custom Machining and Fabrication



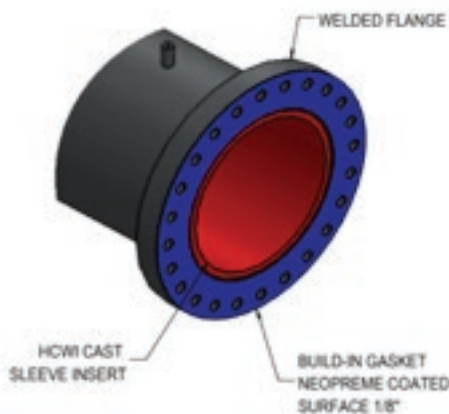
PIPE SPOOL FABRICATION

- ▶ 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



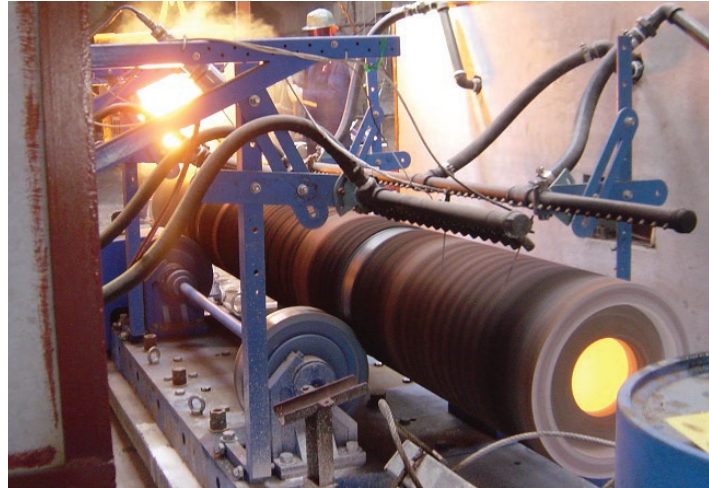
SPOOL FLANGES



- ▶ 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



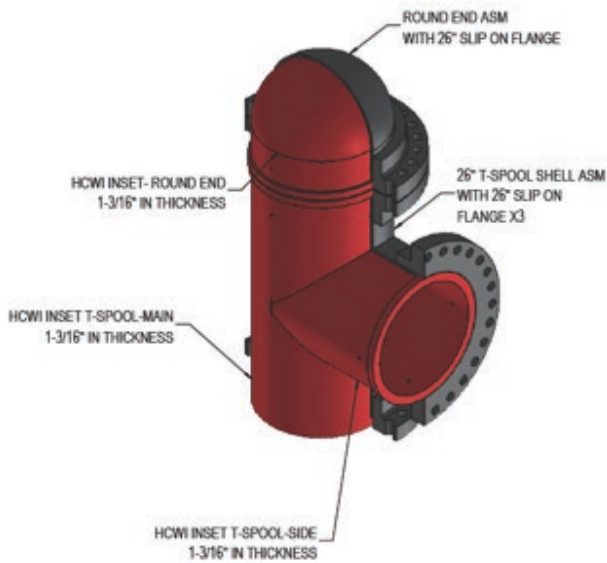
FSF PIPE SPOOL SENSOR PACKAGE

- 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**

**HEAD OFFICE:
FOOTHILLS STEEL FOUNDRY
9390 114 Avenue SE
Calgary, Alberta
T3S 0A4 Canada**

**TEL: 403-255-0125
TOLLFREE: 1-888-STEEL44
FAX: 403-252-8994
EMAIL: info@foothillssteel.ca**

**EASTERN SALES: MONTREAL
SALES MANAGER: Steve Rudinsky
TEL: 514 318 1901
TOLLFREE: 1-888-STEEL44
EMAIL: s.rudinsky@foothillssteel.ca**

foothillssteel.com