NEEDS

Project Data

Title & Goal

☑ Production ☐ R&D Development Project# : FF-LIFT-030317-A-004 Date#: Start Date Company:

Title: Welding of steel tube to sintered iron

Goal: Develop economic process for welding DOM steel tubing to sintered iron powder parts

Problem / Needs

Business Case

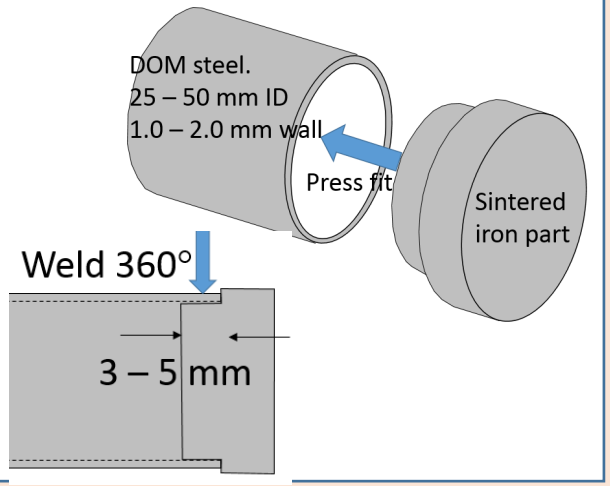
Impact

A process by which DOM steel tubing can be attached to sintered iron powder parts will enable a more cost effective lightweight shock absorber design by removing the parts and processes necessary to compensate for differences in thermal expansion between steel inner tubes and lightweight outer tubes that are not steel.

Problem/Statement

A method is sought to attach steel tubing to sintered iron parts. The steel tubing is produced by rolling and seam welding steel strip and drawing over mandrel. Tubing is 30mm ID and 1 mm wall. The sintered iron is approximately 6.8 g/cc in density and may contain 2% copper.

The joint must withstand a 15 kN minimum push out load and must leak less than 1 cc/s of hydraulic oil at 200 bar. The method must be suited for high volume production with less than a 5 sec cycle time to make the attachment on both ends of the tube.



Deliverables

Financials

Estimated cost impact for equipment, cycle time, and consumables. Equipment for 500k tubes annually should cost less than $1M

Deliverables

- Physical samples
- Report showing statistical conformity to push off load and leak rate minimum requirements given above.
- Specification of equipment and process.