



QUOTE REF: 21609-3

Date: 8/20/2021

Key Plant
AUTOMATION

Project: Taylor Wharton

System consists of:

1 x Linear Precision Growing Line

See details below:

Component details

65"-150" diameter for ID/OD Welding

Ring Section lengths 48"-96"

50' overall length

Includes rail and cable management

Max vessel weight 75,000lbs

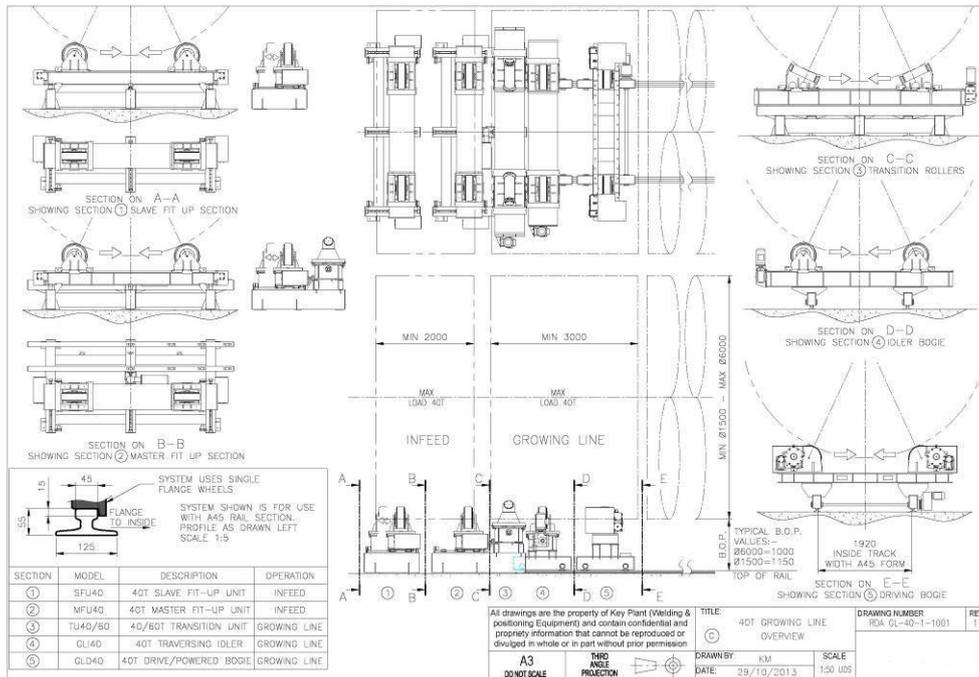
Linear Precision Growing Line Proposal will consist of: (see GA drawing: GL-40-1-1001-GA)

- 2 off Fit Up Idlers (1 x MFU40 & 1 x SFU40)
- 1 off Transition Unit (TU40/60)
- 1 off Idler Unit with Manual Undercarriage (GLI40)
- 1 off Drive Unit with Motorized Undercarriage (GLD40)



The **Key Plant** Growing Line is designed for the joining of tubular components.

The system provides an economical solution for fitting up of cans for joining sections enabling the precise alignment which reduces manufacturing time, saving production hours.



The 2 Fit Up Idlers have wheel bracket carriages, that are moveable long the rotators frame independently and simultaneously by the means of a ball screw to enable the fit up of 2 pipes. The ball screws are total enclosed for protection and each balls screw is supported with AC geared motors, housed in a steel vented protection cover.

No hydraulics

Ball screw precision operation

Linear 3 axis vessel movement

Clean environment, no floor cables

System Advantages

- Reduces time & cost
- Increases productivity
- Low BOB work piece height
- Master & slave configuration
- Independent wheel alignment

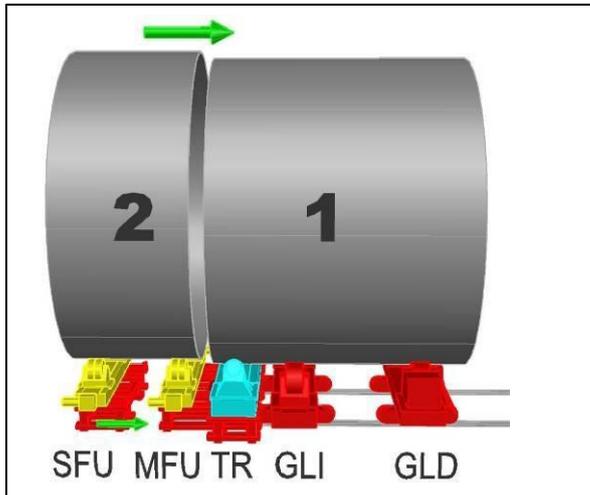




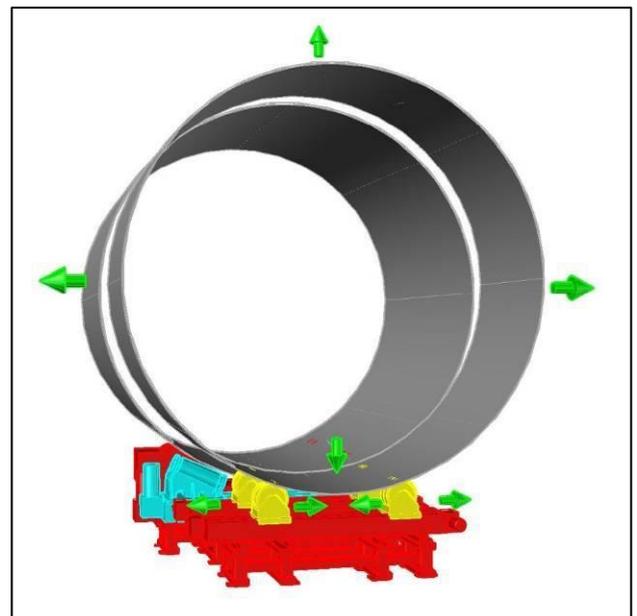
Load Can Section 1 - onto CRI & CRD

Load Can Section 2 - onto the In-feed Fit Up Idlers SFU & MFU and butt up section 2.

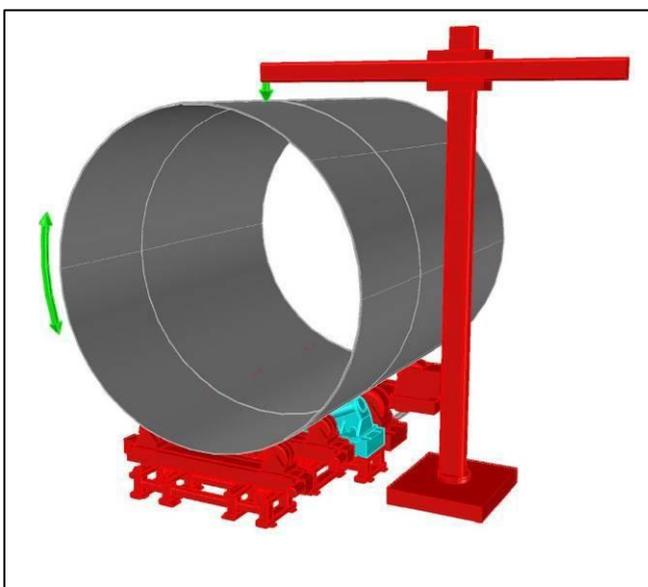
This operation is performed by linear rail with motorized leadscrew.



Fit Up Can, Section 2 before aligning to Can Section 1. This operation is performed by adjusting the wheel positions through motorized dependent leadscrew.

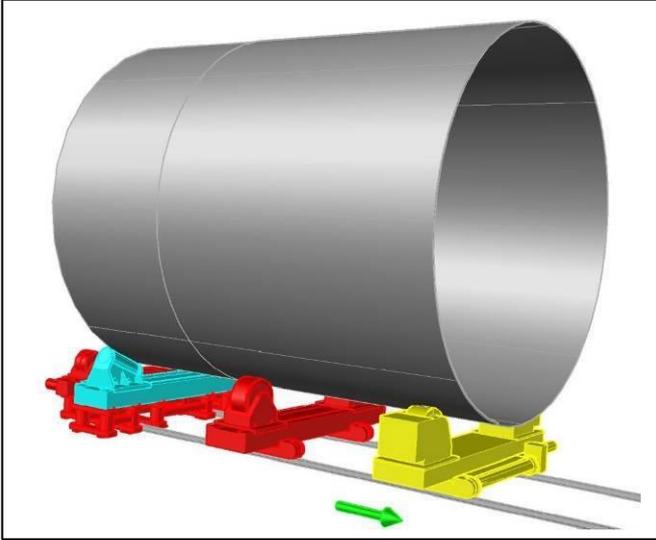


Tack & Weld section 2 to section 1.
This results in one complete pipe.

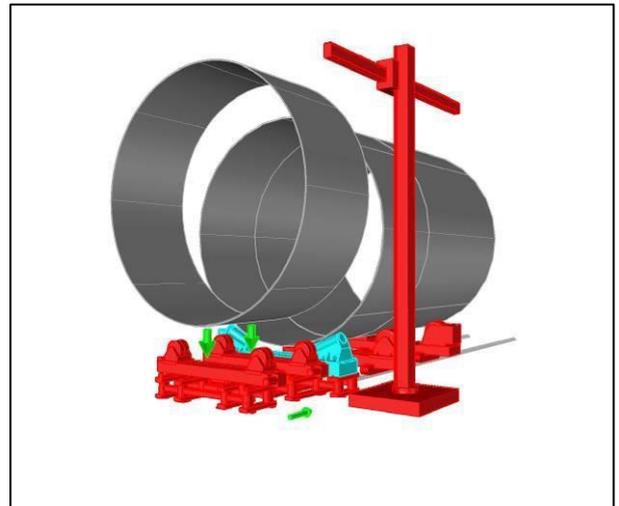




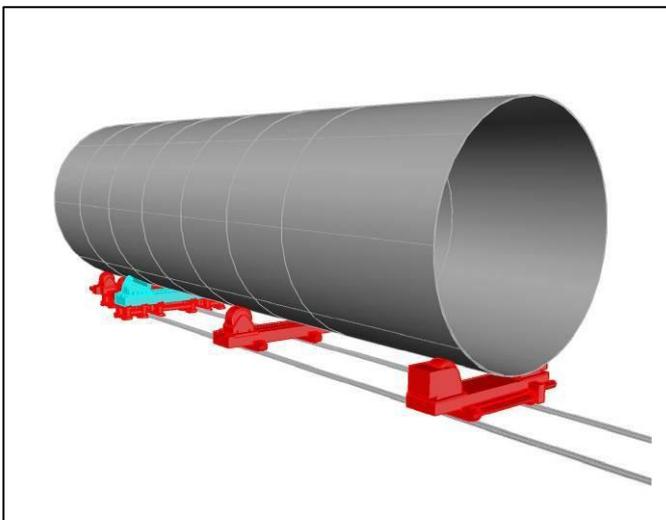
Traverse the pipe down the line, with the transition unit assisting.



Load new section onto the Fit-Up Rotators and start the process once again

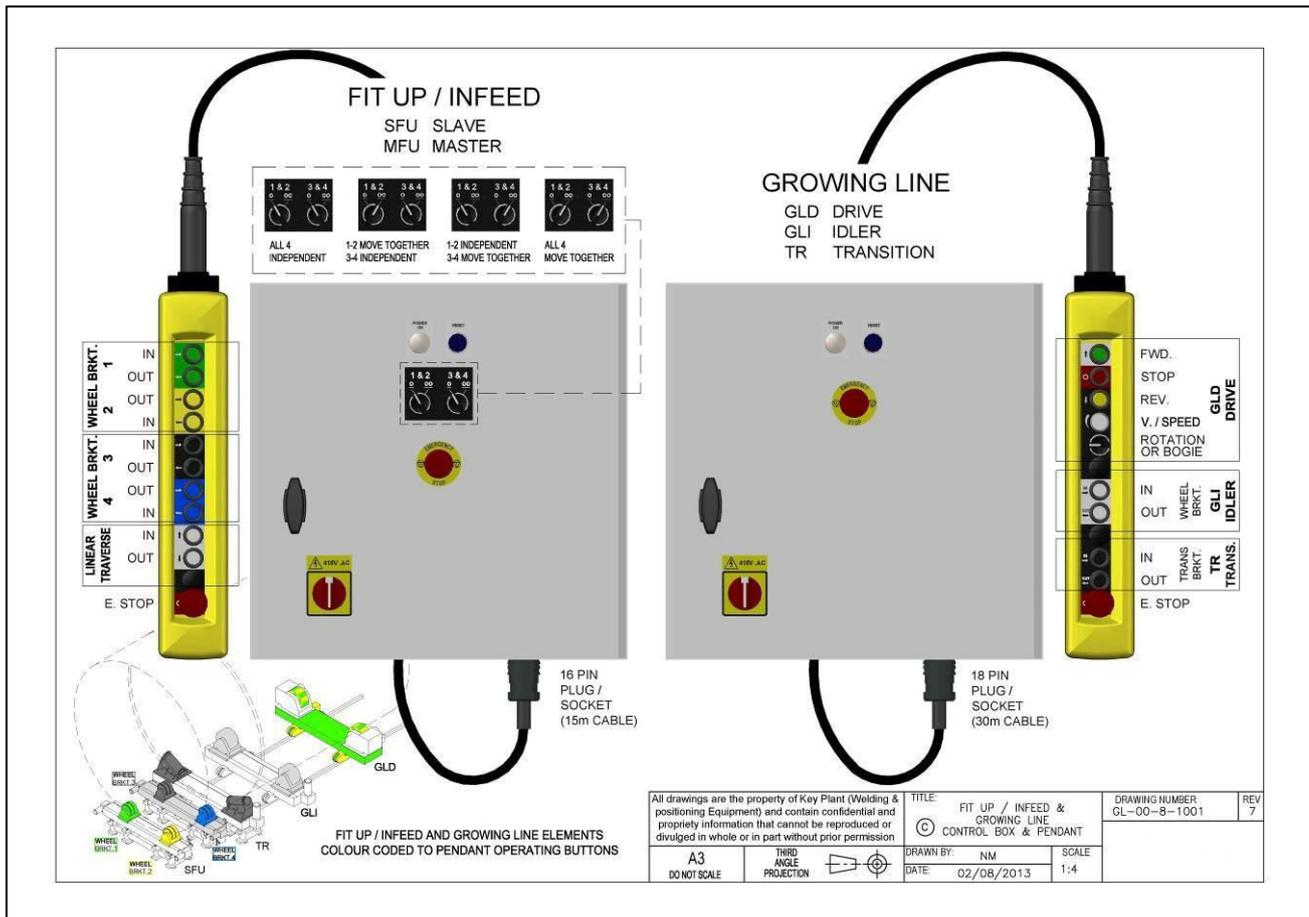


Continue until the sections are added and the pipe is complete





System Layout



With individual motorized adjustment of each axis under load, the sections can be manipulated:

- left, right
- up, down
- (Y, Z, Z axis) to join the cans together

The wheel bracket carriages can be moved:

- Each carriage independently (4 Carriages) in or out
- 2 carriages either on the same frame SFU or opposite frame MFU in or out
- All 4 carriages in or out

Each wheel bracket is operated through a precision ball screw arrangement for accurate, precise control. The ball screw is enclosed in a retractable fire-resistant bellow, to prevent damage or safety issues.

The carriage movement functions are made by the handheld pendant

The Drive & Idler rotators are fitted with undercarriages to move along the floor rail.

The Drive Unit will have a motorized undercarriage and the Idler Unit will have manual undercarriage.

Rotators fitted with Polyurethane Tires

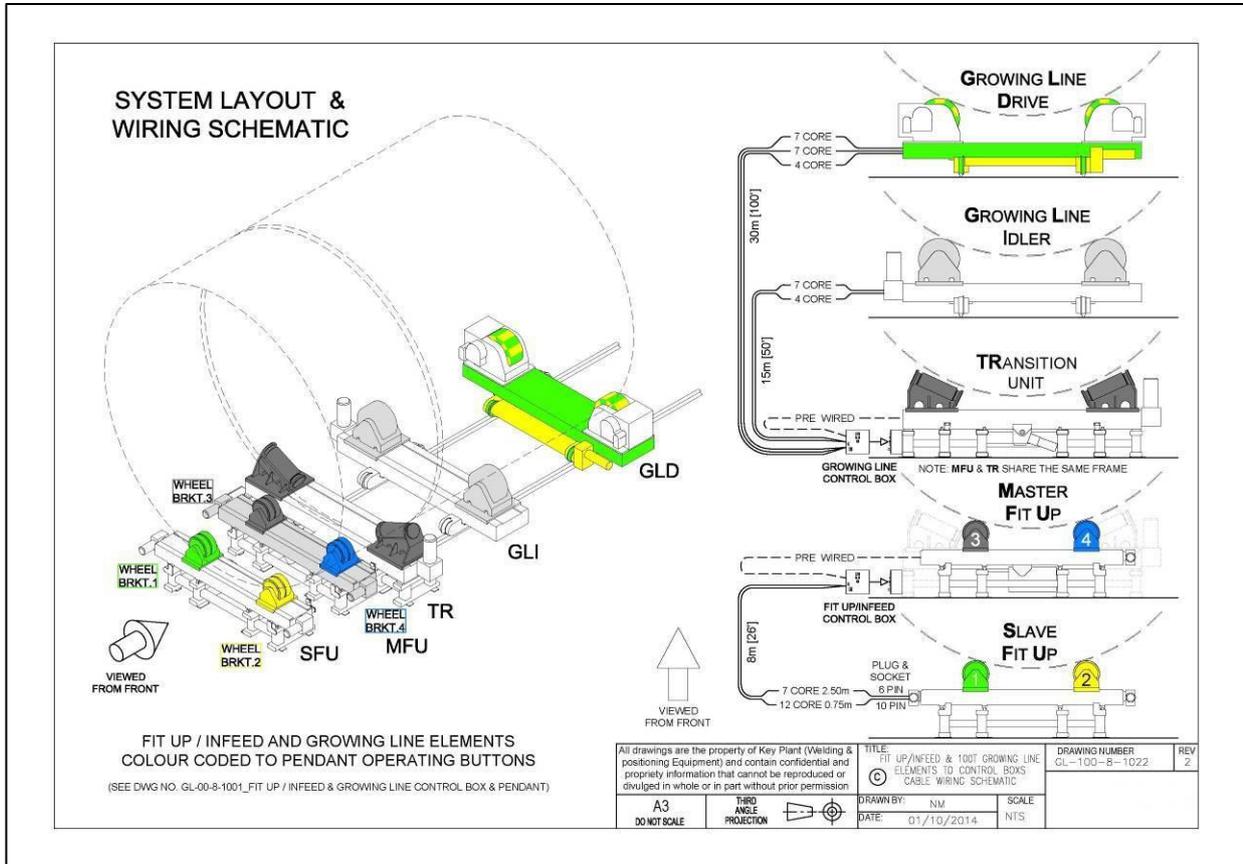


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System Layout



Growing Line Operation:

The first can will be positioned on the Drive & Idler Units and the second can will be positioned on the 2 Fit Up idlers, the two cans will be brought together, and welding can start.

Once the two cans are welded together the rotators will be ready to transfer down the line. The TU unit wheels will be brought together (wheels) to engage the can and the MFU and SFU wheels are re-tracked to enable the TU unit and GLI & GLD begin to travel along the floor rail and pass the pipe down the job.

Once this occurs the MFU & SFU are repositioned back in its starting point to accept the next can which can be weldedand so on until all the can sections are welded.