



# SloanLED Bendy: Universal Bend Tool

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## Background

SloanLED is a lighting company that provides innovative application-based light solutions to their customers. They create custom bends with the use of handcrafted wooden molds that match the customer specified designs. This current process requires new molds for each design making it economically and environmentally inefficient as well as time-consuming. Our final product is fully customizable to achieve SloanLED's advertised range of acceptable radii.

## Overview / Design Specs

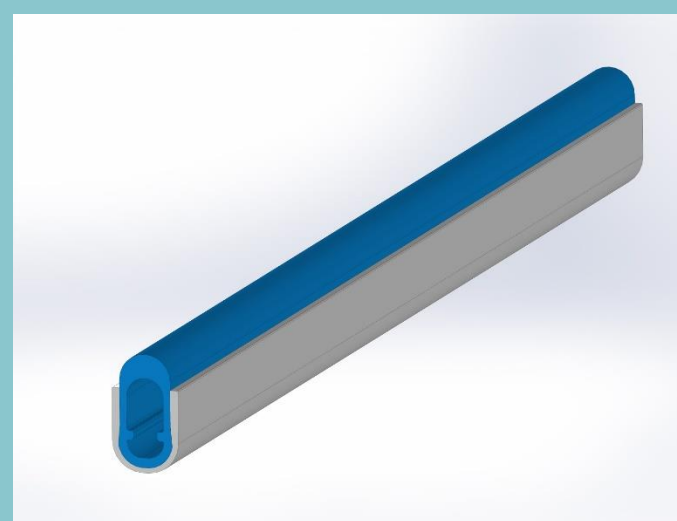
Our proposed solution utilizes a movable fixture and guide system called The Bendy Board.

### Target specifications include:

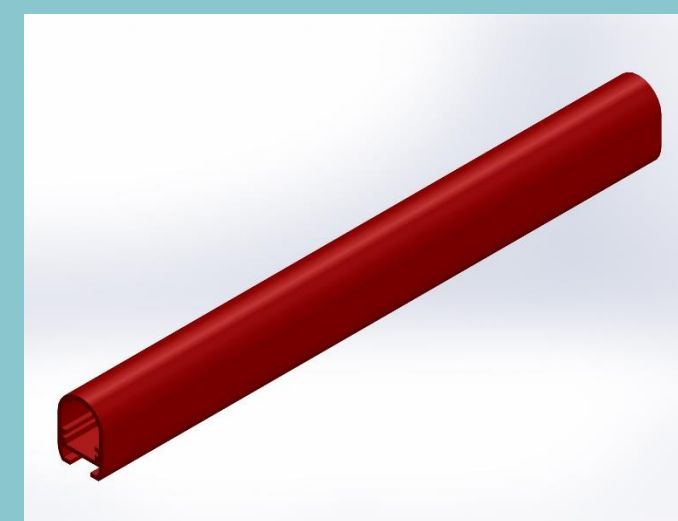
- A minimum bend radius of 9" for ColorLINE and 12' for LEDStripe extrusions.
- The ability to withstand 203°F/95°C.
- Total assembly weight between 15 and 30 pounds.

### The key features include:

- Fixtures that can rotate freely about their vertical axis.
- Use bend radius & deflection as variables in custom Excel spreadsheet to dictate location of fixtures.
- Fixtures consist of a U-shaped housing, spacer, spring, and attachment components.
- Wooden board to provide stability for the t-tracks.



ColorLINE Extrusion



LEDStripe Extrusion

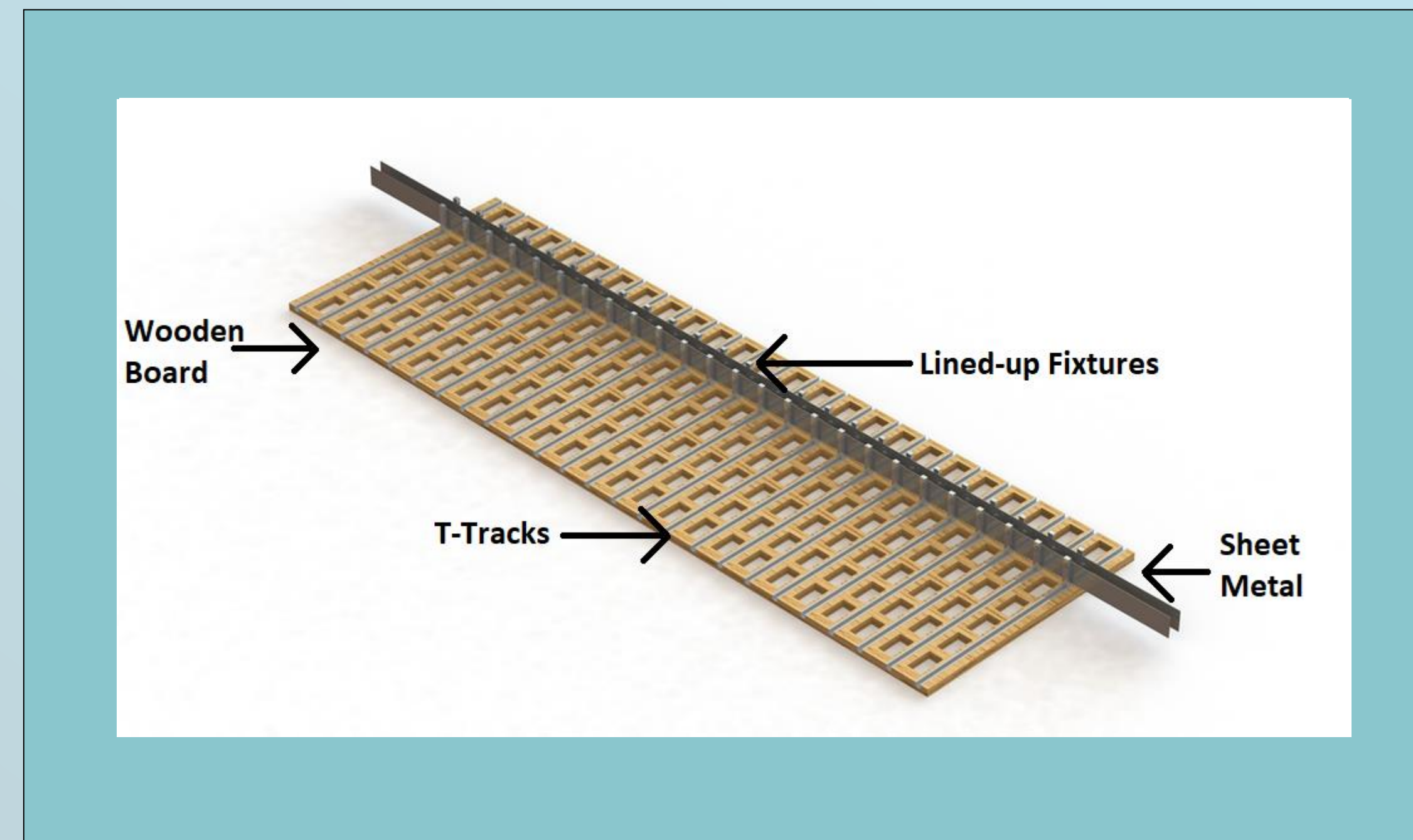


ColorLINE Cross Section



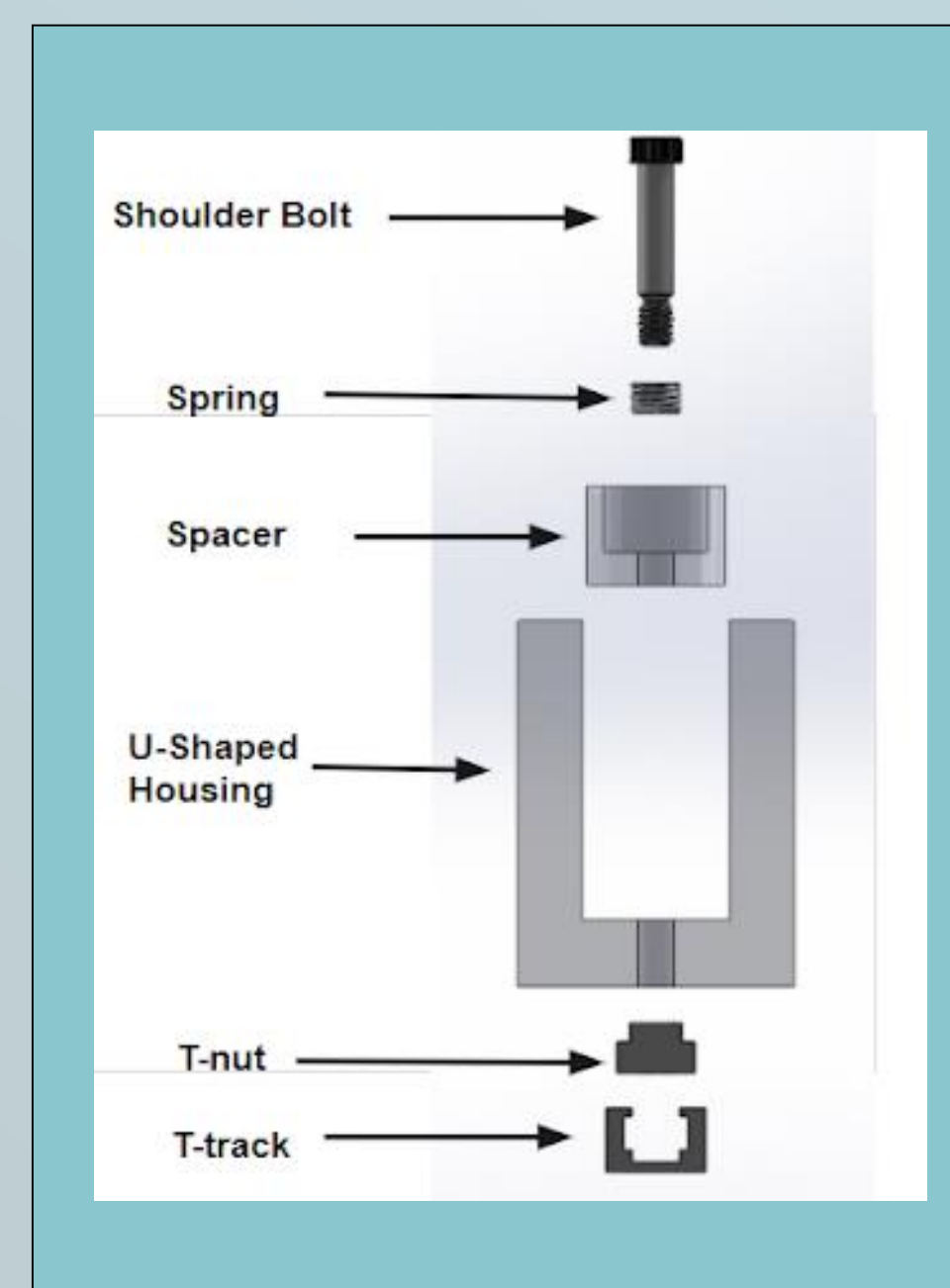
LEDStripe Cross Section

## Final Design / Product Name



Full board assembly with fixtures prepositioned in a straight line.

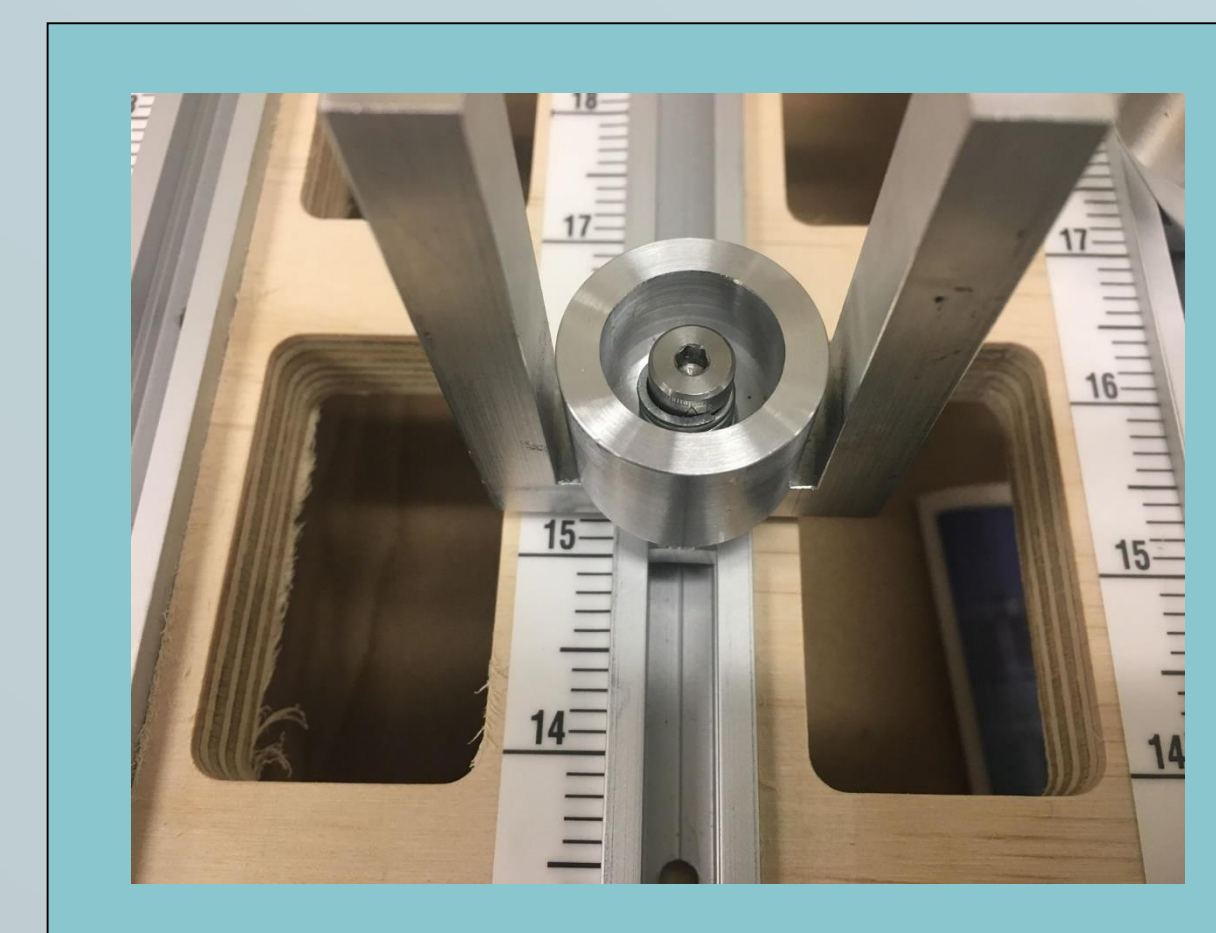
## Hardware / Key Components



### Fixture system consists of:

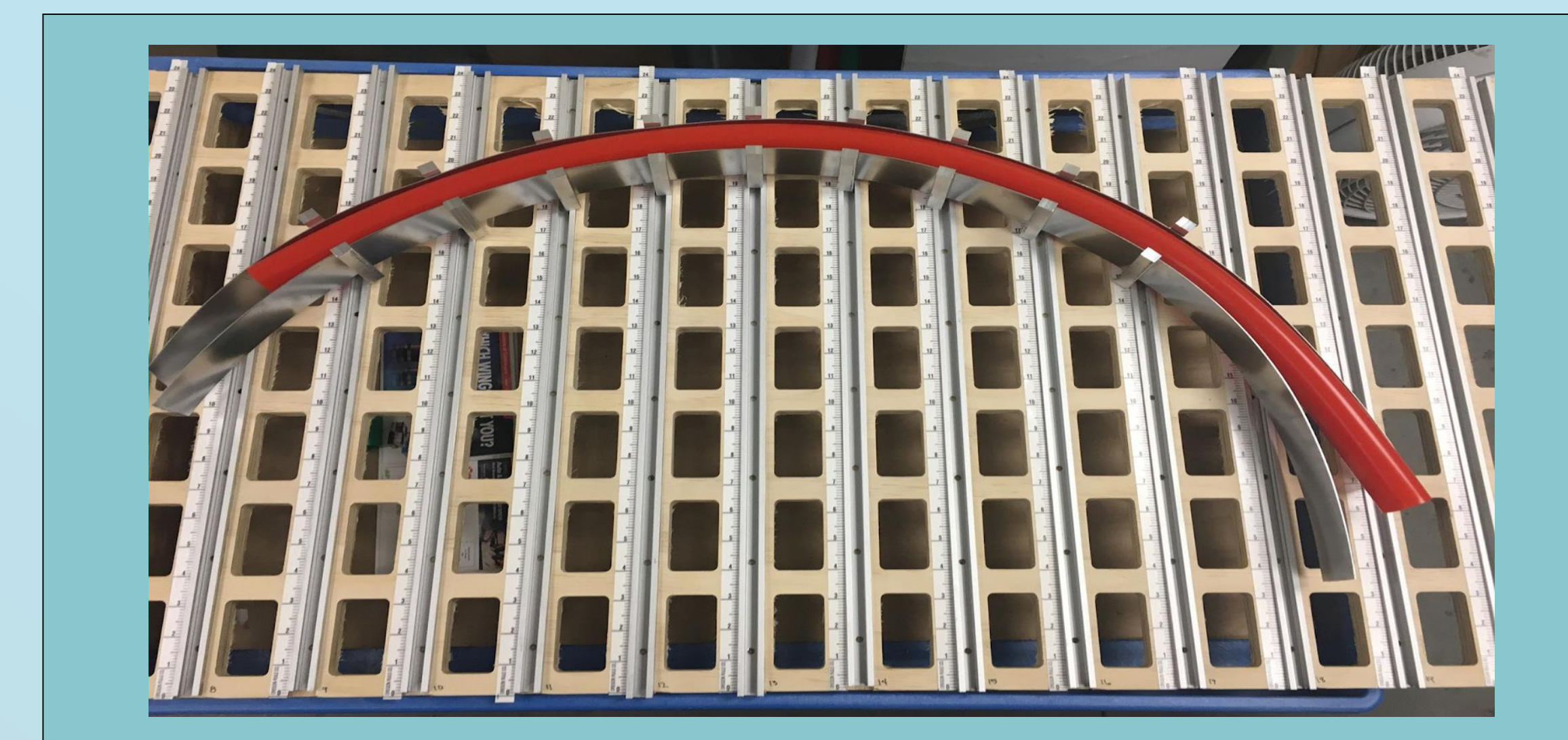
- U-shaped housing.
- A spacer & attachment components.
- The shoulder bolt that compresses a spring.

All of this helps lock the system in place, but still allows it to rotate freely about its vertical axis.



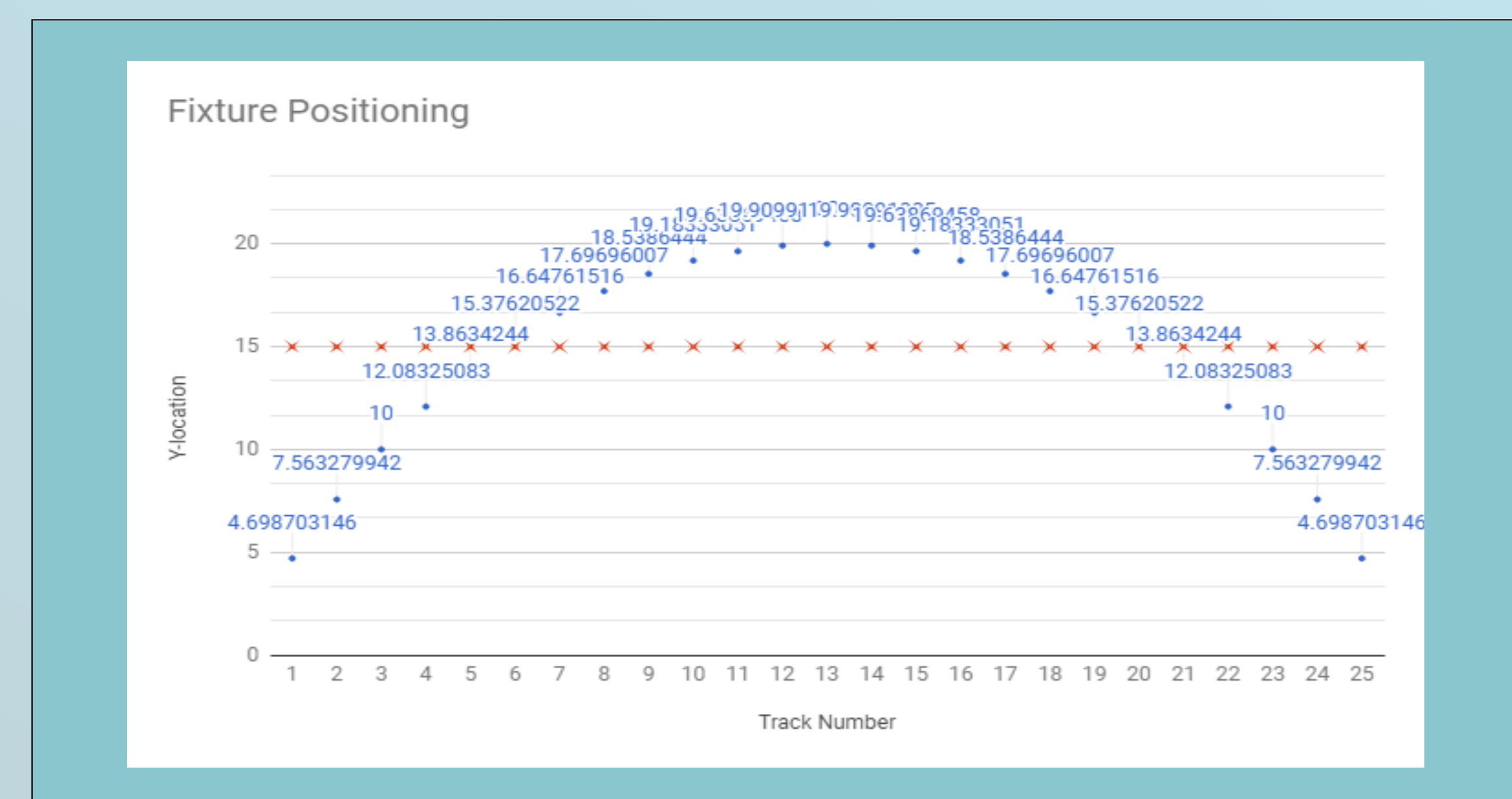
Rulers on board allow the user to precisely move the fixture to desired location.

## Bend Test



- Can accommodate 145 degree radial and flat bends with a minimum radius of 12 in.
- Set-up time for a bend using Bendy is approximately 14 times faster than creating a new mold.
- Cooling time using Bendy cuts down SloanLED's standard allowed cooling time by 80%.

## Curve Calculation Program



### User must input:

- The provided radius.
- The provided curve deflection.
- Select an initial x-y location for the center fixture.

Our curve program then determines the y location for each fixture and displays a chart that shows a replica of the curve with x and y data given at each point.

### Acknowledgements:

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