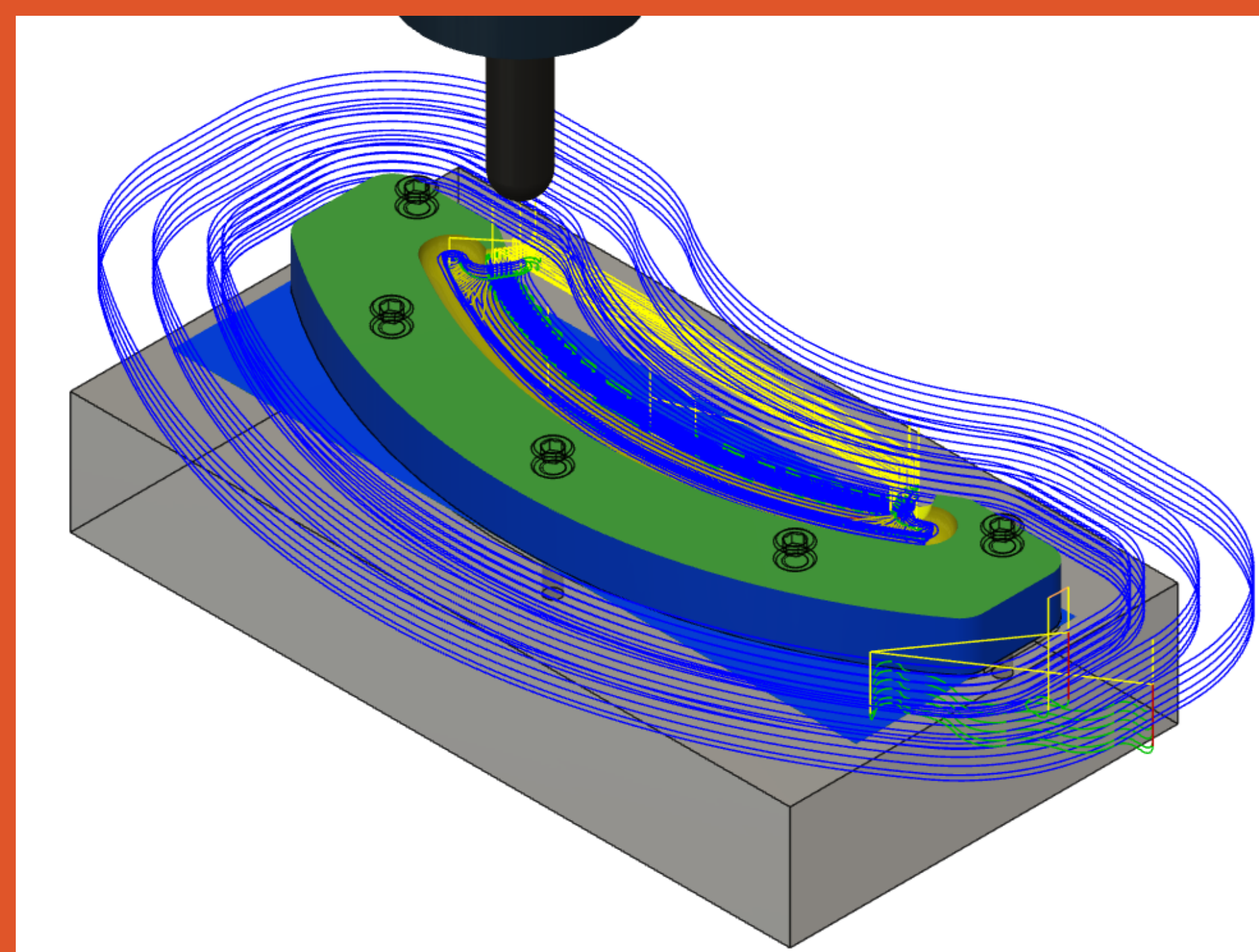


Summary

MTN Flow Stride sought to create a snowshoe binding system that allowed for increased articulation in the pitch and roll to increase comfort during downhill and sidehill climbing.

Manufacturing

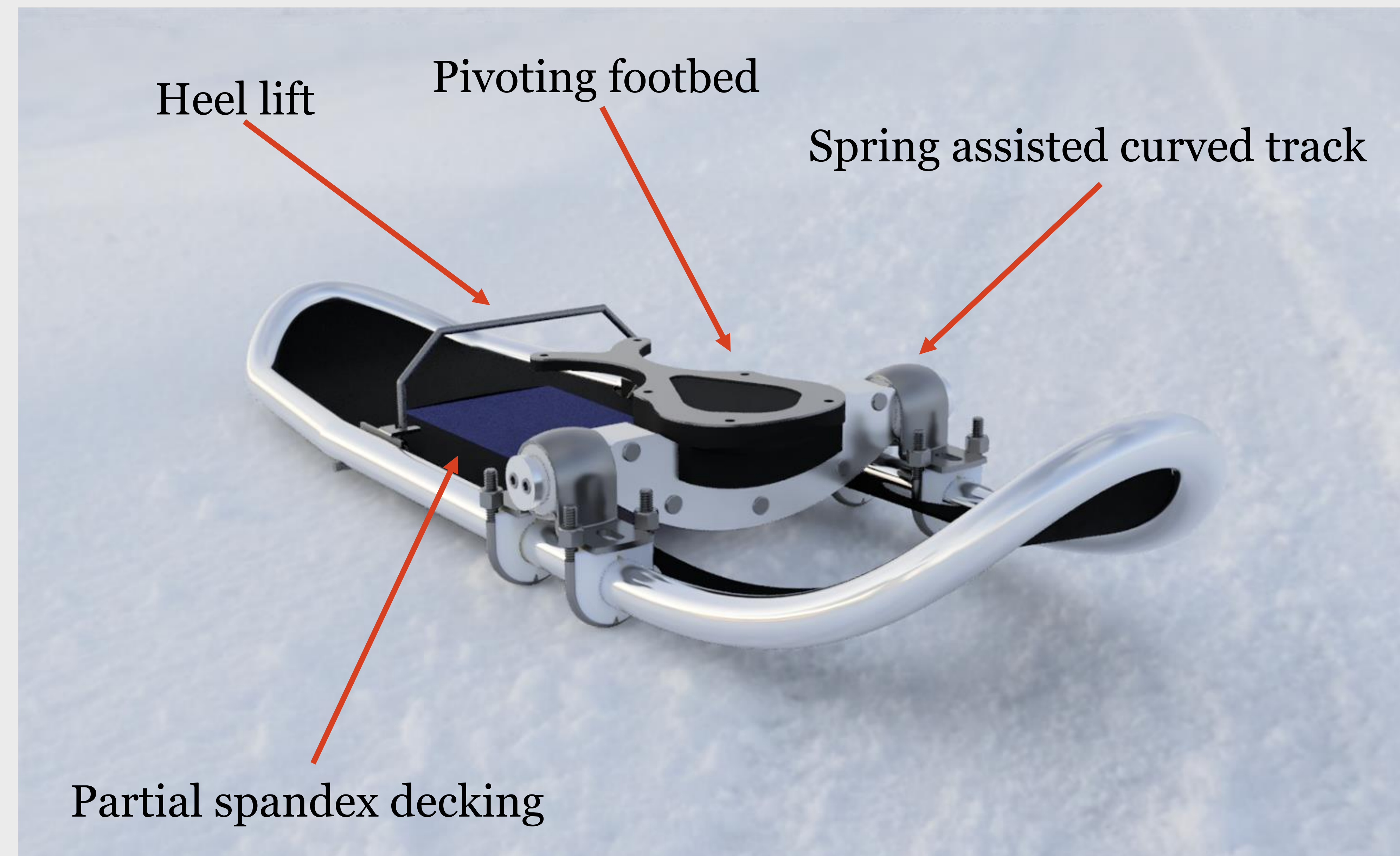


The manufacturing process for MTN Flow Stride consisted of many different components and steps including CNC machining, sewing, manual machining, 3D printing, and steel bending. Seen above is the tool paths and corresponding part produced through CNC machining.



MTN FlowStride

- Second axis of rotation to address traversing a sidehill
- Increasing axis of rotation to address descending downhill



Proof of Concept Prototypes



Side view of initial sliding mechanism



Top view of sliding mechanism groove



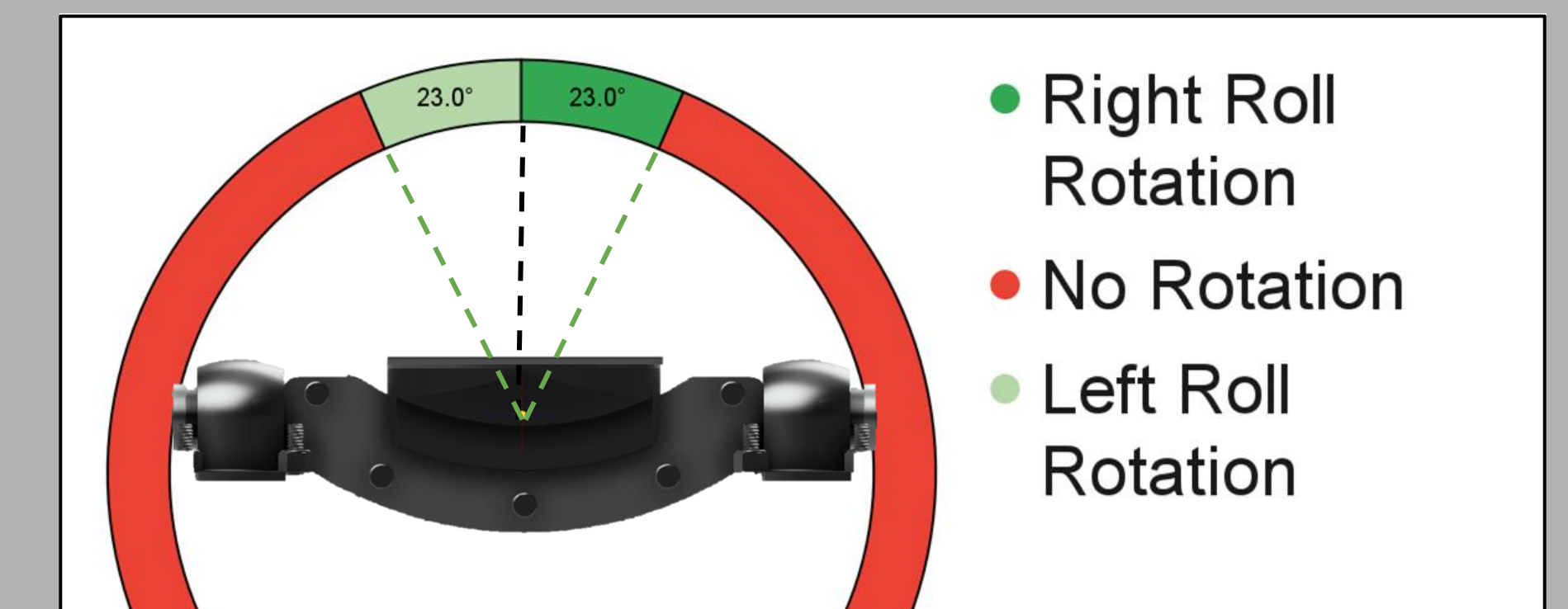
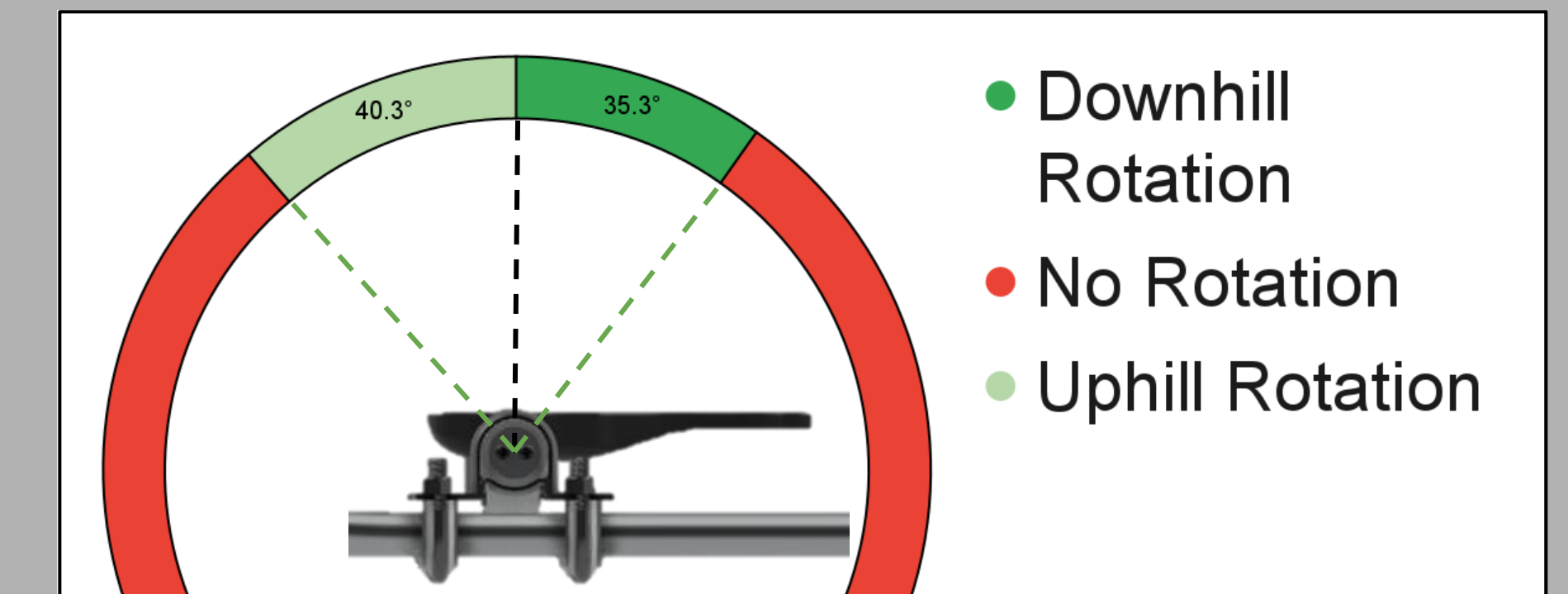
Roll articulation for sidehill climbing



Pitch articulation for uphill and downhill climbing

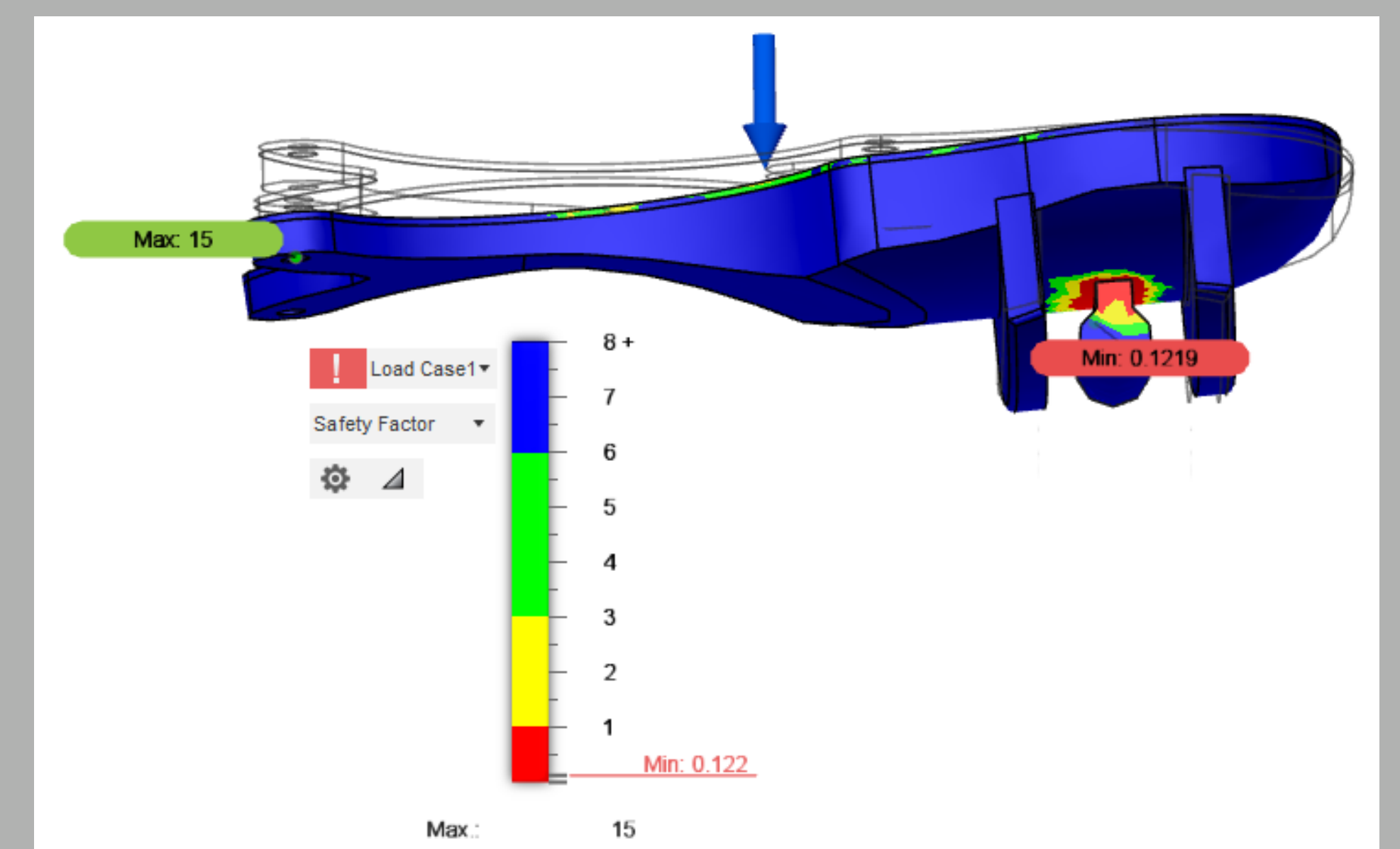
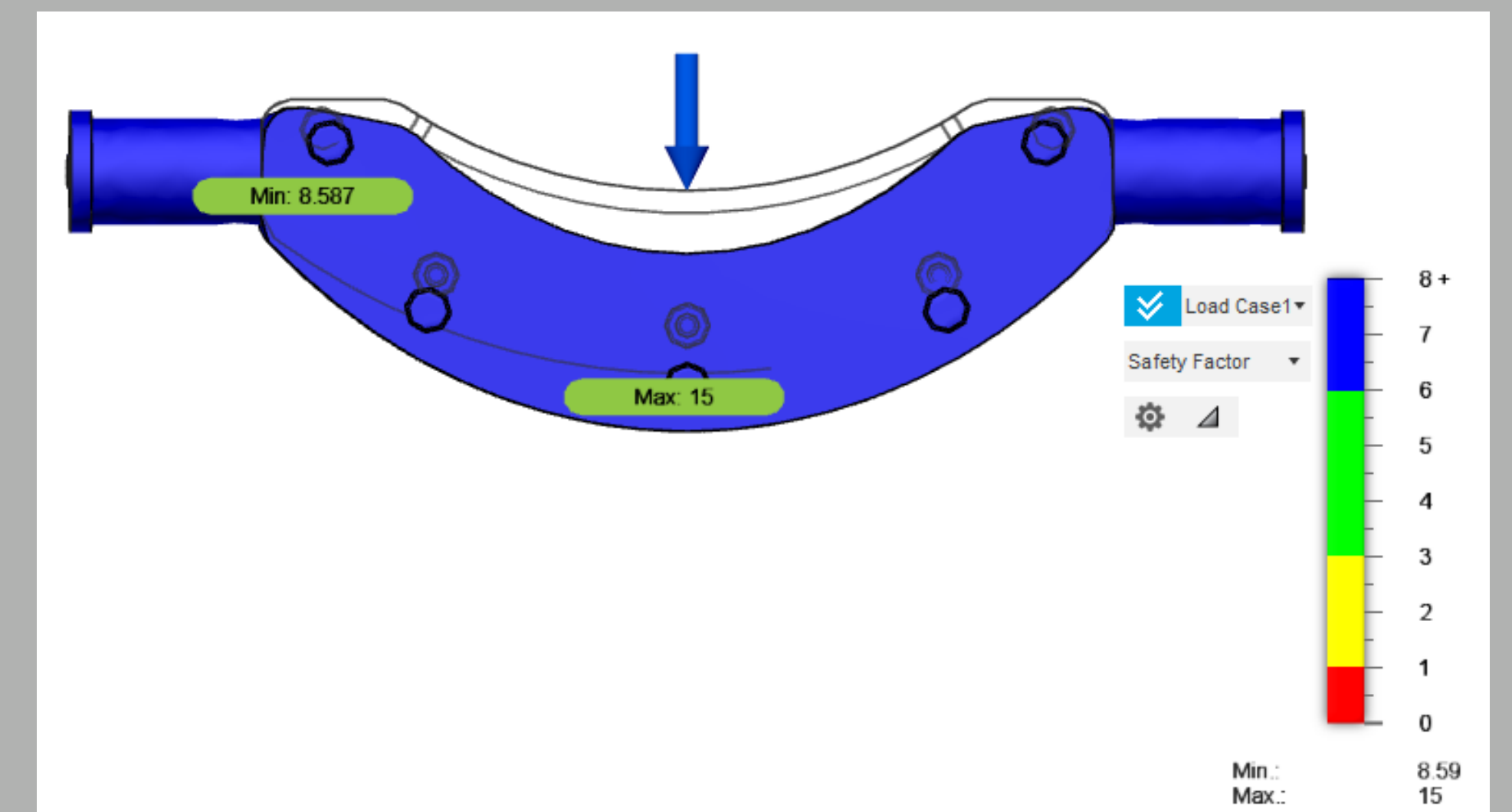
Test Results

Customer Required 15° of Roll
Customer Required 30° of Pitch



FEA Simulations

1800 Newton static force
Representative of 400lb user



MTN Flow Stride was tested against 3 engineering specifications. It's ability to rotate in the roll direction by 15°, rotate in the pitch rotation by 30°, and hold a 400 lb user. Final testing showed that the Flow Stride system allowed for 23° of roll rotation, 35.3°- 40.3° of pitch rotation and the ability to hold over a 200 lb user.