Joint Test Results & Analysis Comparison

Matt Capstick

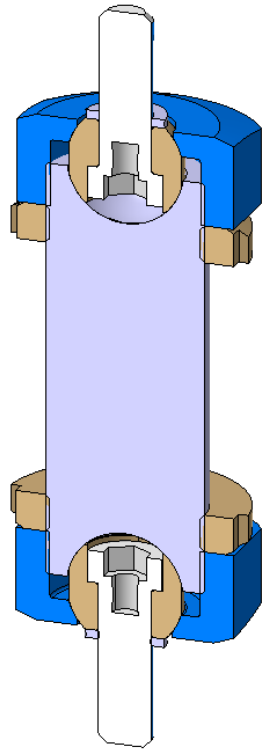
Testing By:

Callum MacLean, Mateusz Sosin

New Joint Version

- Testing was carried out on a newer version
  - SPHERICAL VERTICAL JOINT 2t LHCGUPS_0032

- Designed for higher loads (and higher stiffness)
- Uses a steel core
- 22mm Standard bearing



Testing

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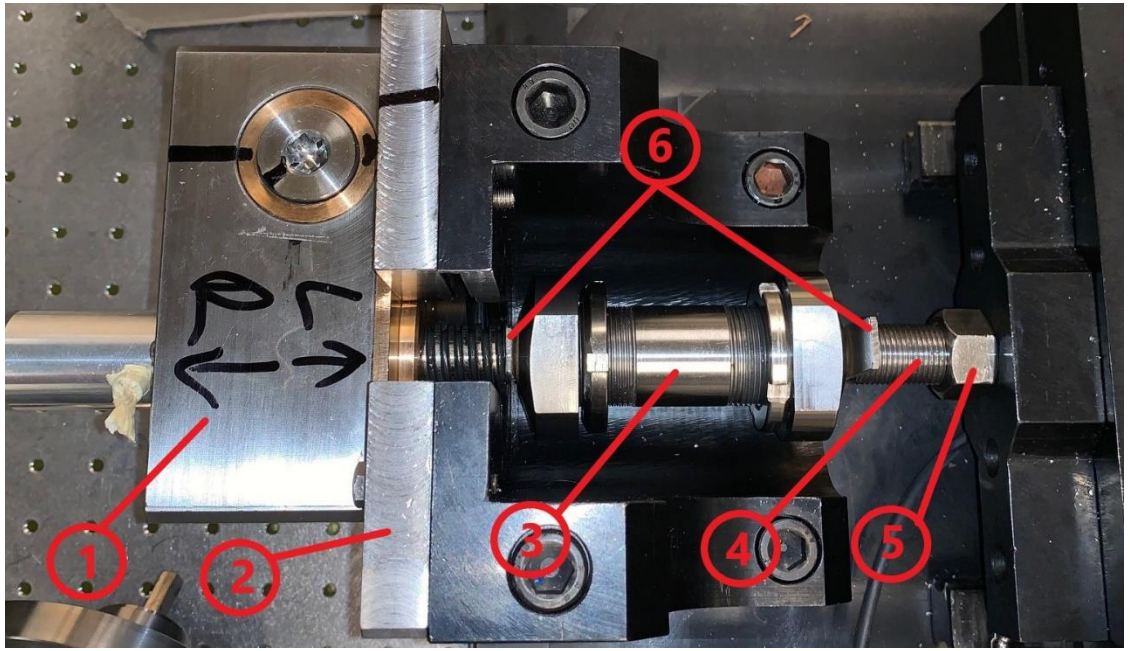


Figure 8 – Vertical Jack Secured (1. Vertical Jack, 2. Adaptor Plate, 3. Joint, 4. Adaptor Bar, 5. Locking Nut, 6. Measuring Plates)

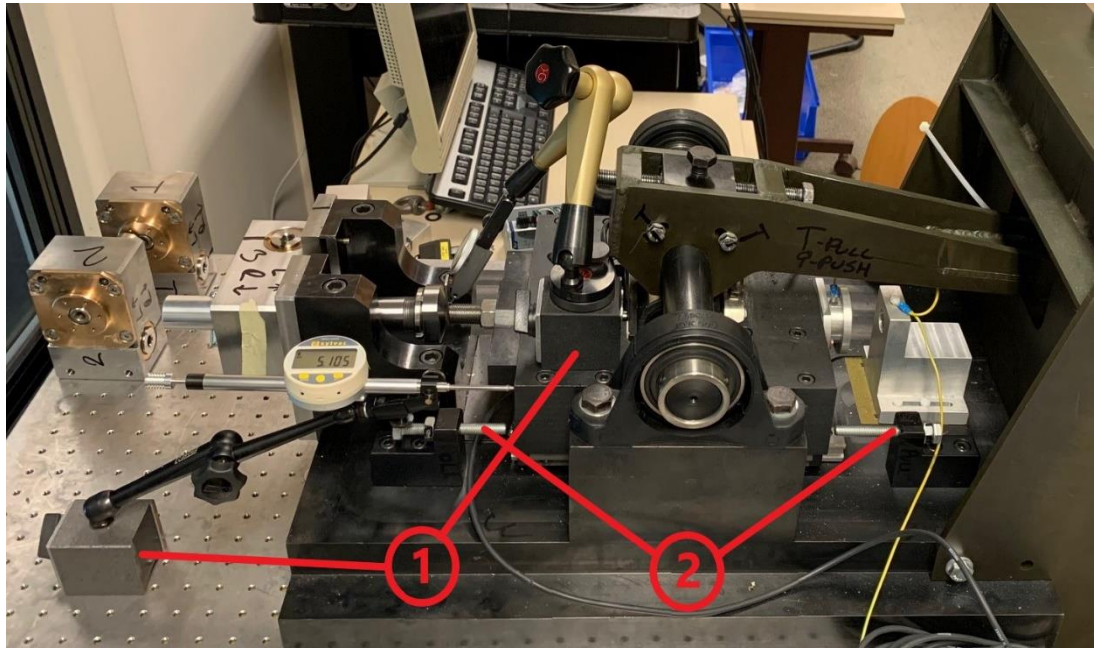
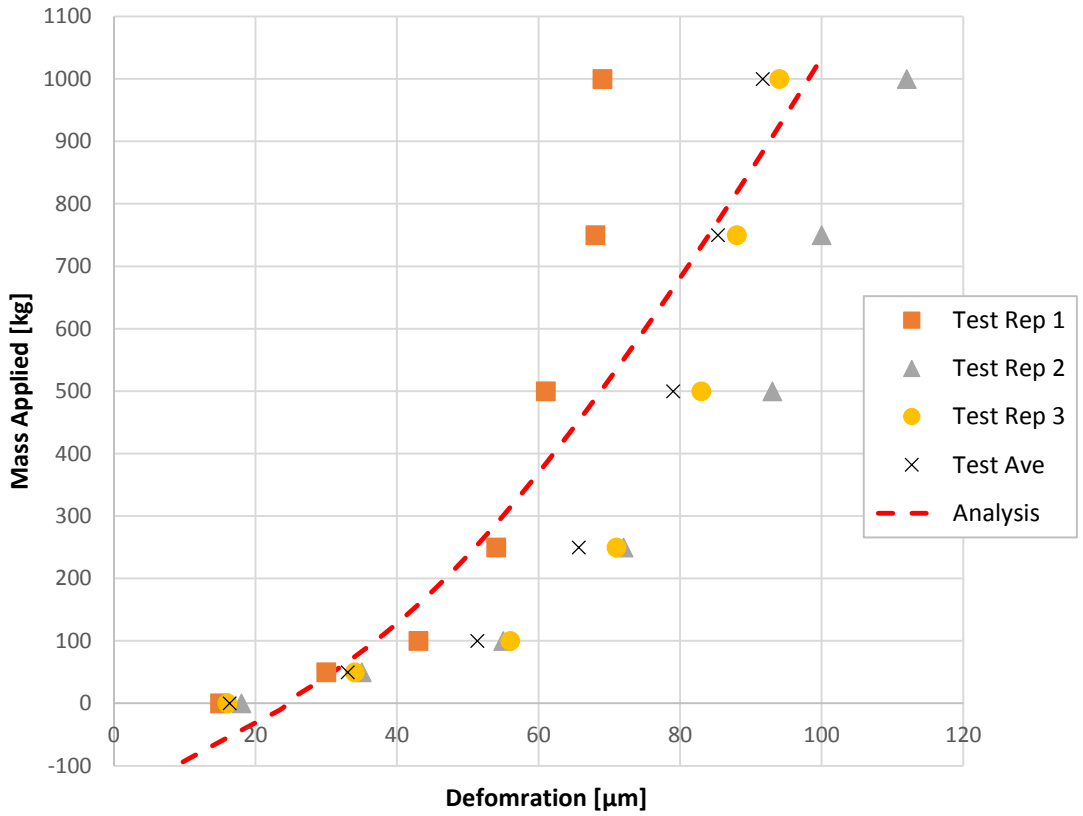


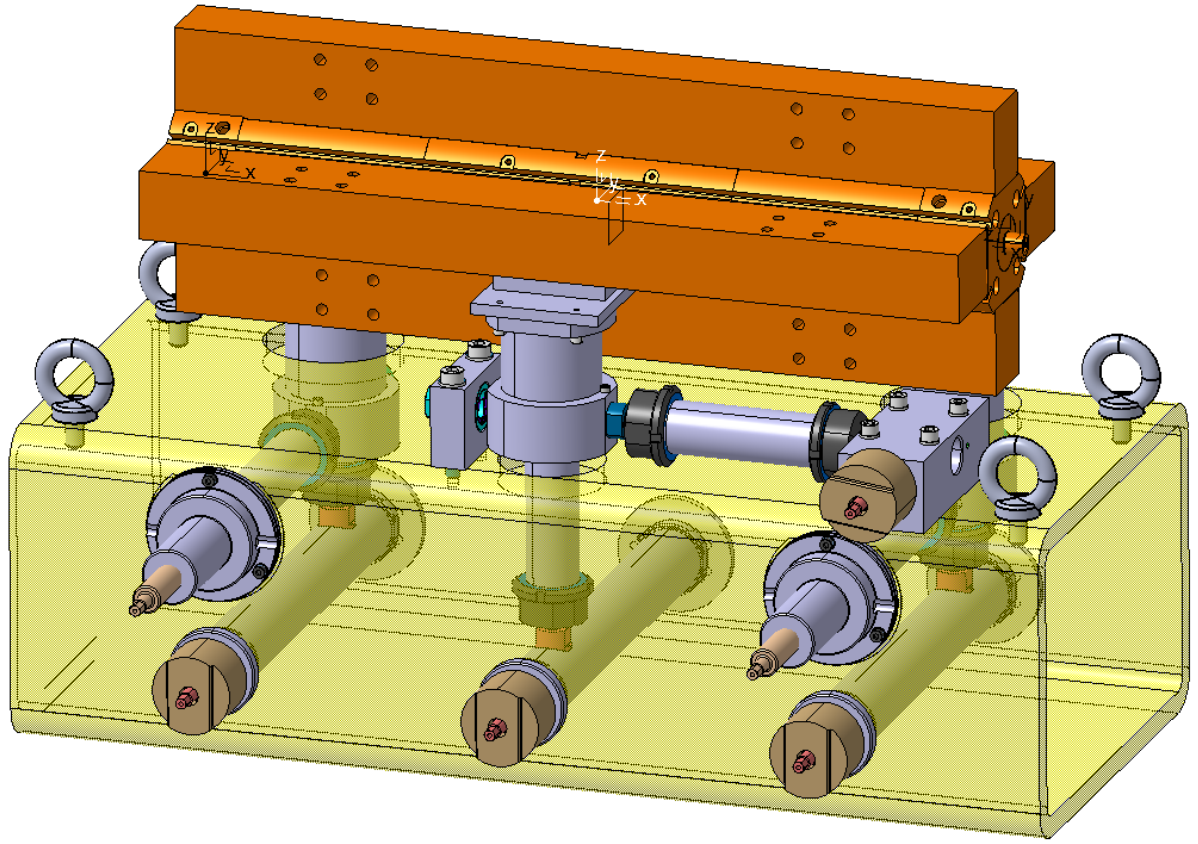
Figure 9 – Test Set-up (1. Dial Test Indicators, 2. Locking Screws)

Test Results & Analysis

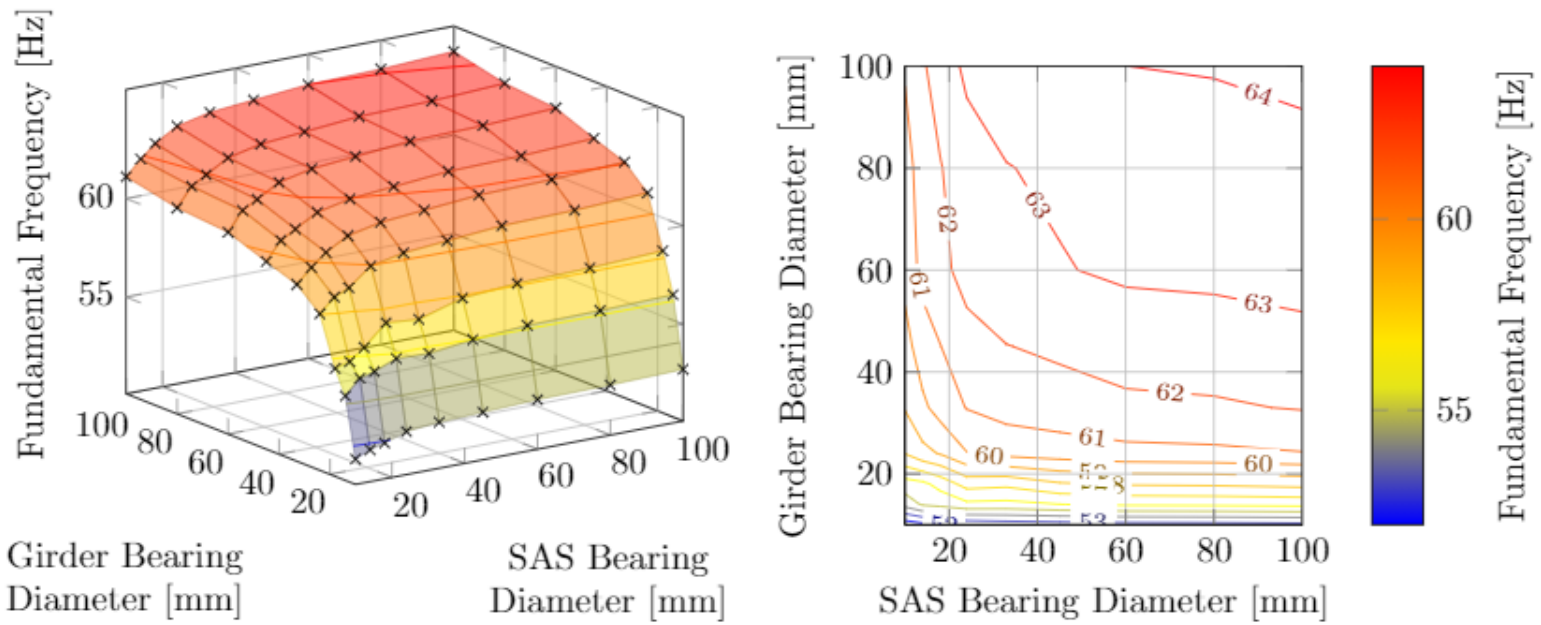


SAS Support System

- The stiffness of the prototypes seems very close to the version I was considering to support the SAS
  - 22mm instead of 24mm
- We could use these standard bearings for prototypes



Girder Vs SAS Bearing Size

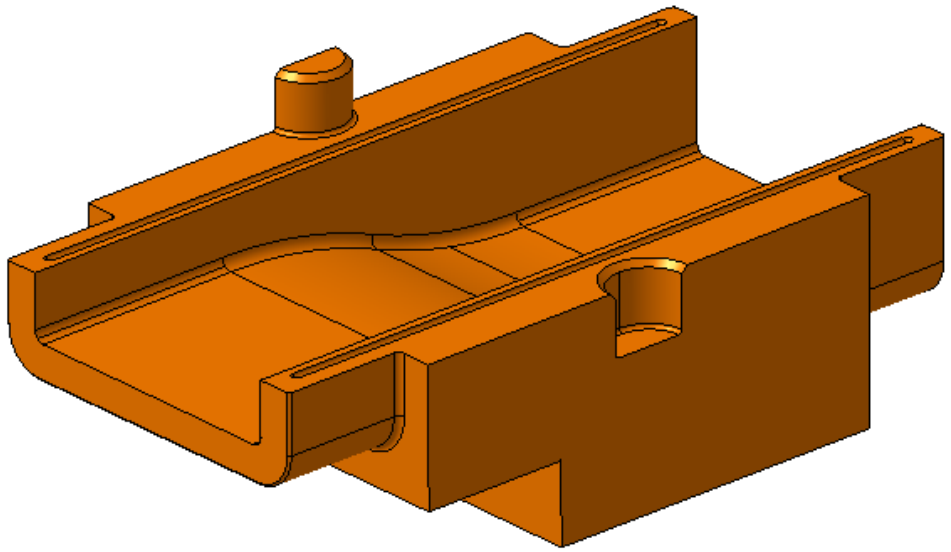


(a) Subfloat.

(b) Subfloat.

Figure 10: The fundamental frequency of the joint-supported main beam assembly for various joint designs.

DH Taper



- Symmetric halves for thermal balance during brazing
- Alignment pins?
  - Probably not needed
  - Align using external surfaces
- Machine flange surfaces after initial brazing
- Amount/position of brazing wire needs verifying