



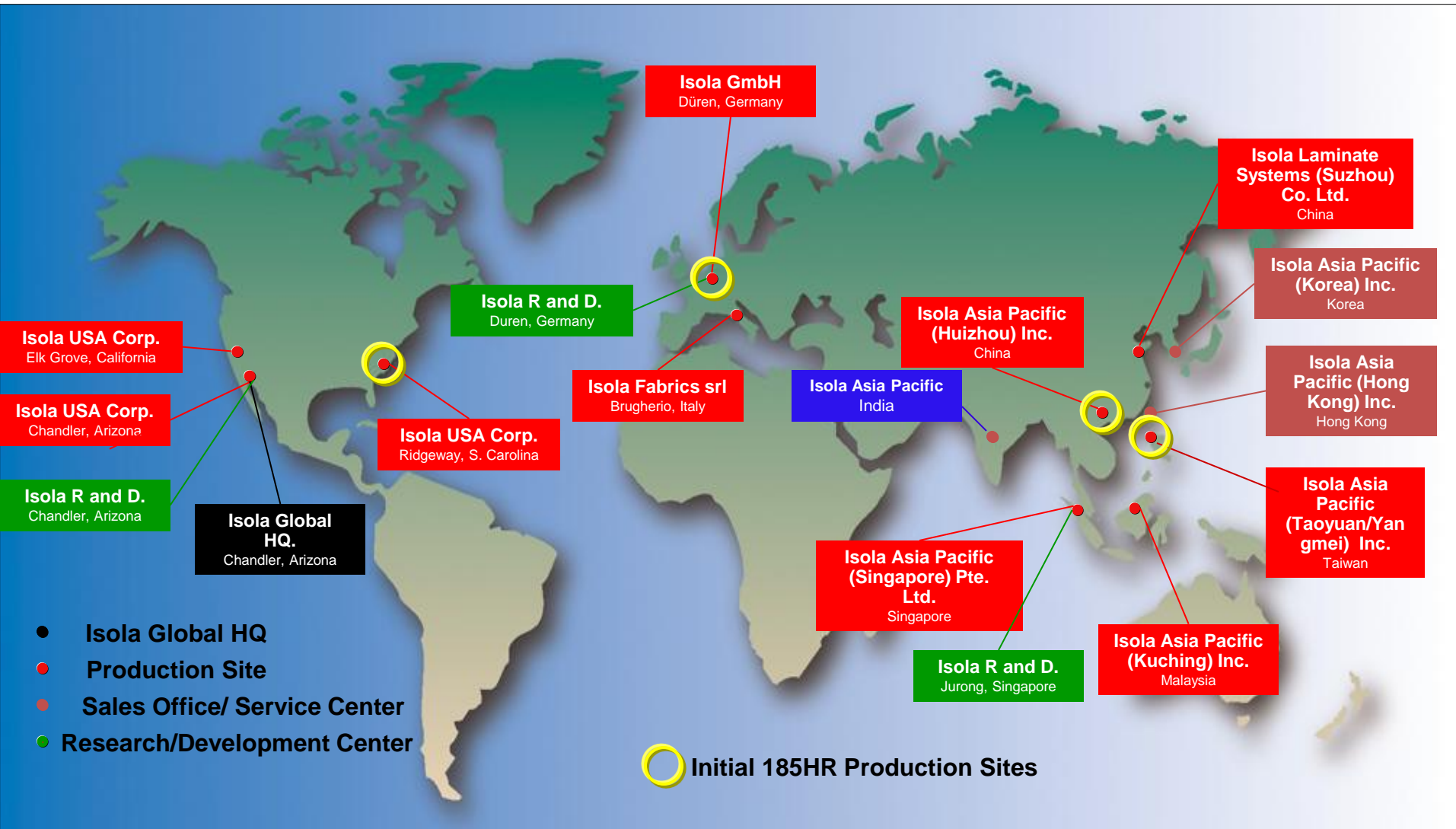
isola

Semi-Flex

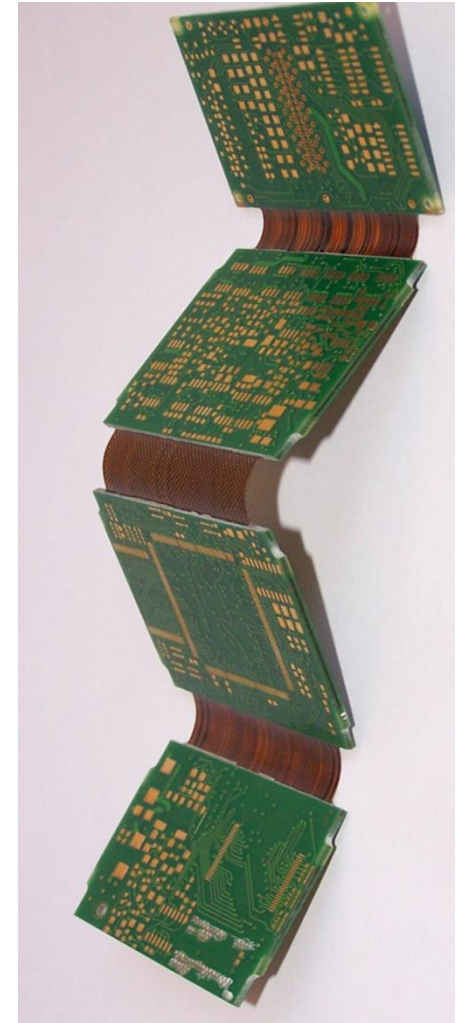
multi-family semi-flexible cores and prepregs



Isola Global Locations



The Semi-Flex family of laminates and prepregs are a low cost alternative for flex-to-install technology applications where non-dynamic or limited bending is required.



- Low cost of ownership**
- Conventional PCB processing**
- Dimensional Stability through reinforced E-glass**
- Lead-free compatible**
- Manufactured in Europe**
- No additional UL requirements**
- Available across a wide range of Isola products**

- Material thickness 60um, 80um, 100um**
- Glass Styles 106, 1080, 2116**
- HD Copper 18um, 35um**
- Product DE104, IS400, IS410, 370HR, 408HR**
- Available in sheets, panels or rolls**

- **Test Matrix:**

- **Material: IS400, IS410, 408HR, 370HR**

- **Glass Styles: 106, 1080 and 2116 (single ply)**

- **Copper Foil: 18um HD copper**

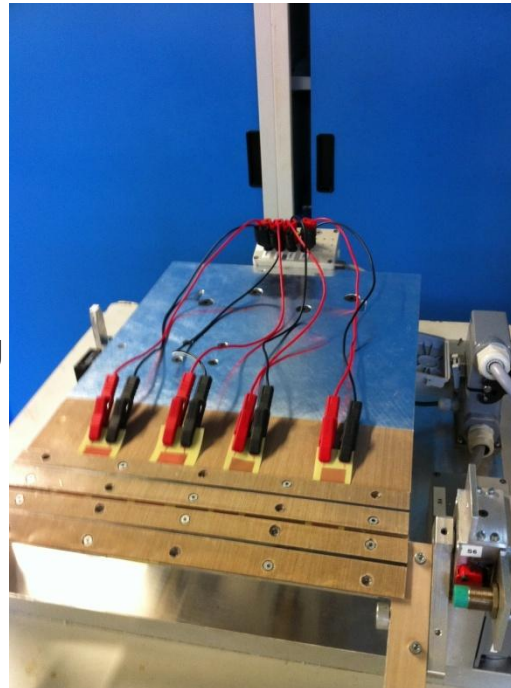
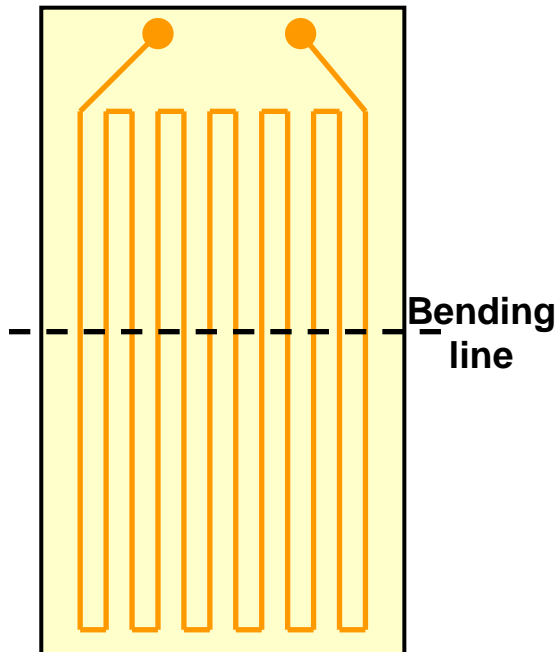
- **Bending Radius: 2mm, 3mm**

- **Bending Angle: 180°degrees**

- **Track Width: 300um**

Test fixture and test set up:

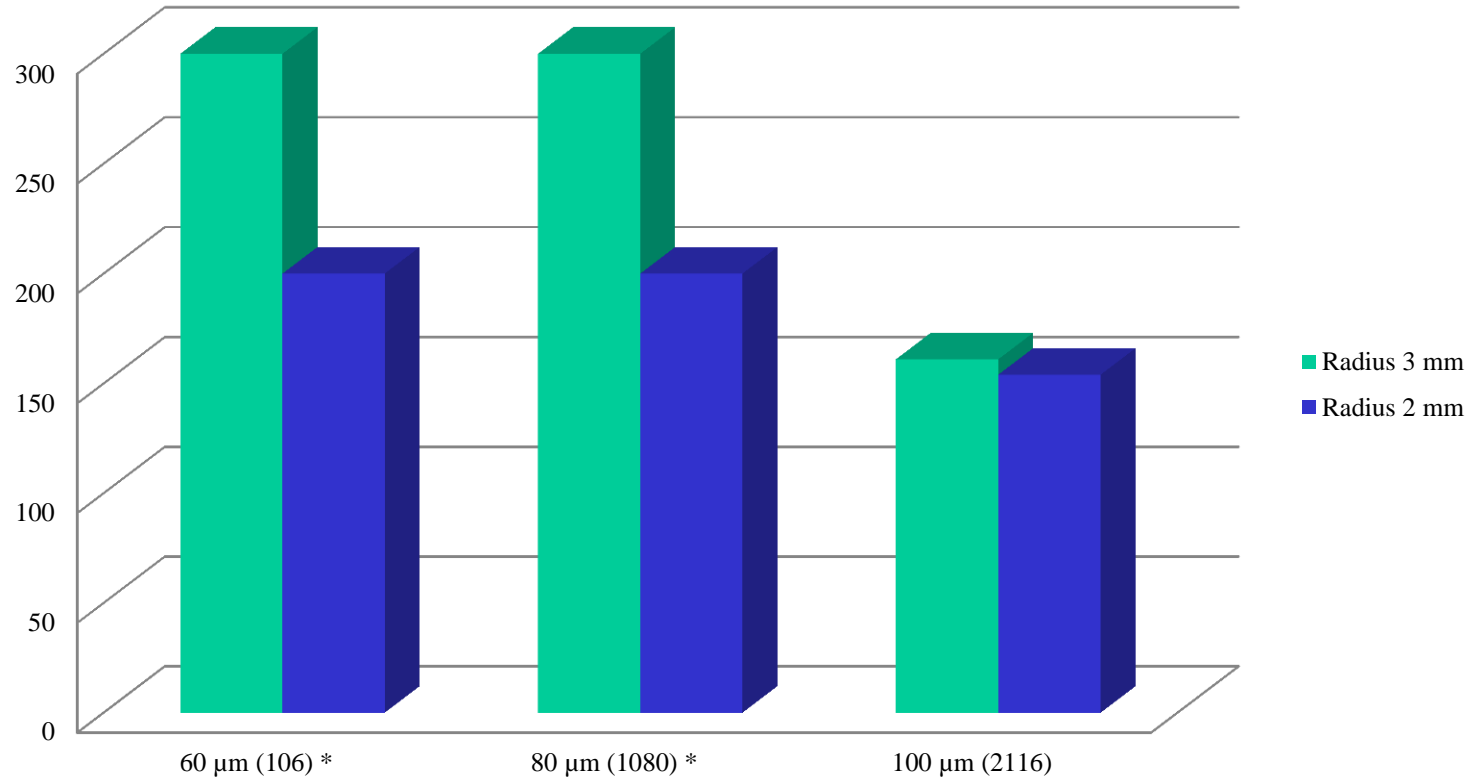
Test Vehicle (schematically)



Failure criteria: Break in the track after n bending cycles

Semi-Flex – Test Results

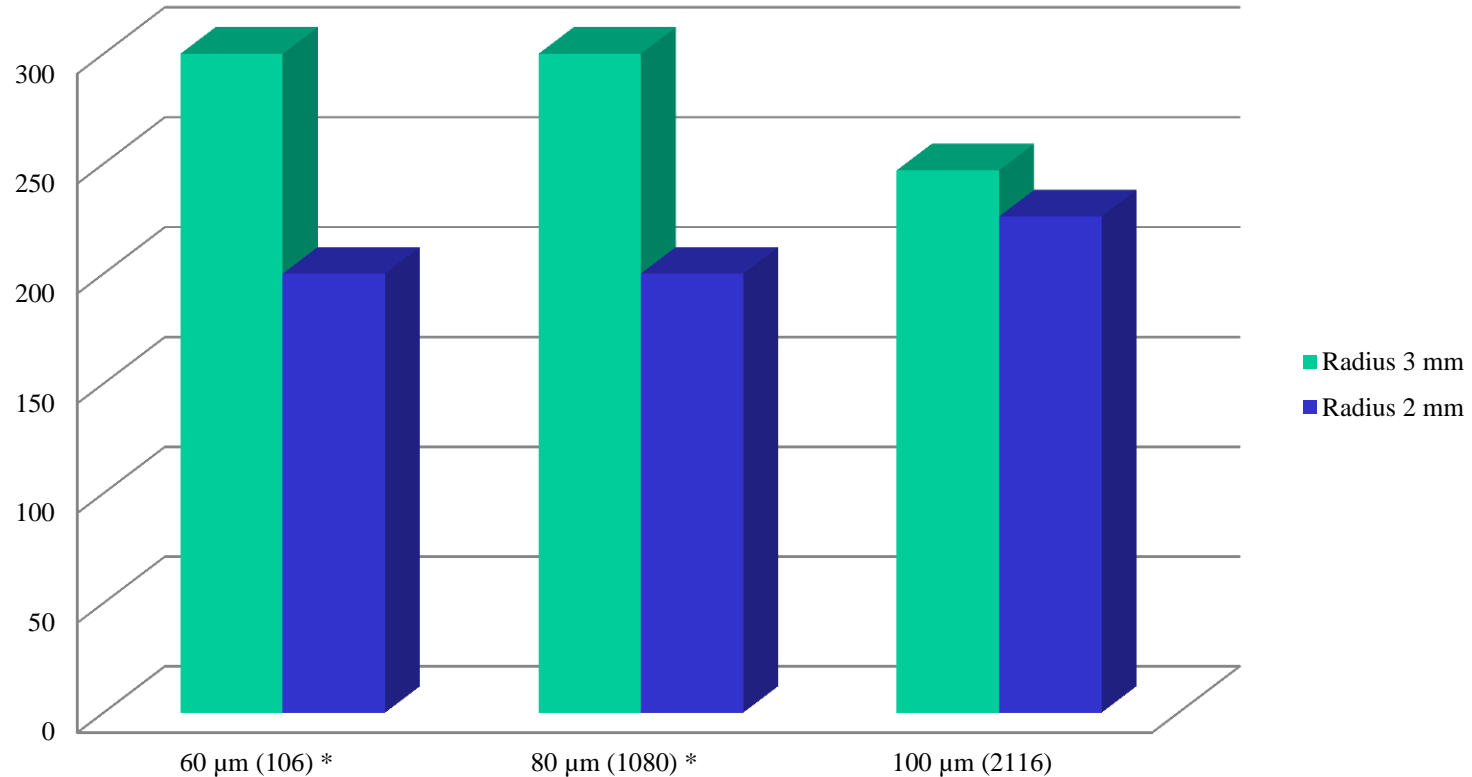
IS400, Number of bends, bending angle 180



* Prediction based on pilot tests, extensive test series will soon be completed.

Semi-Flex – Test Results

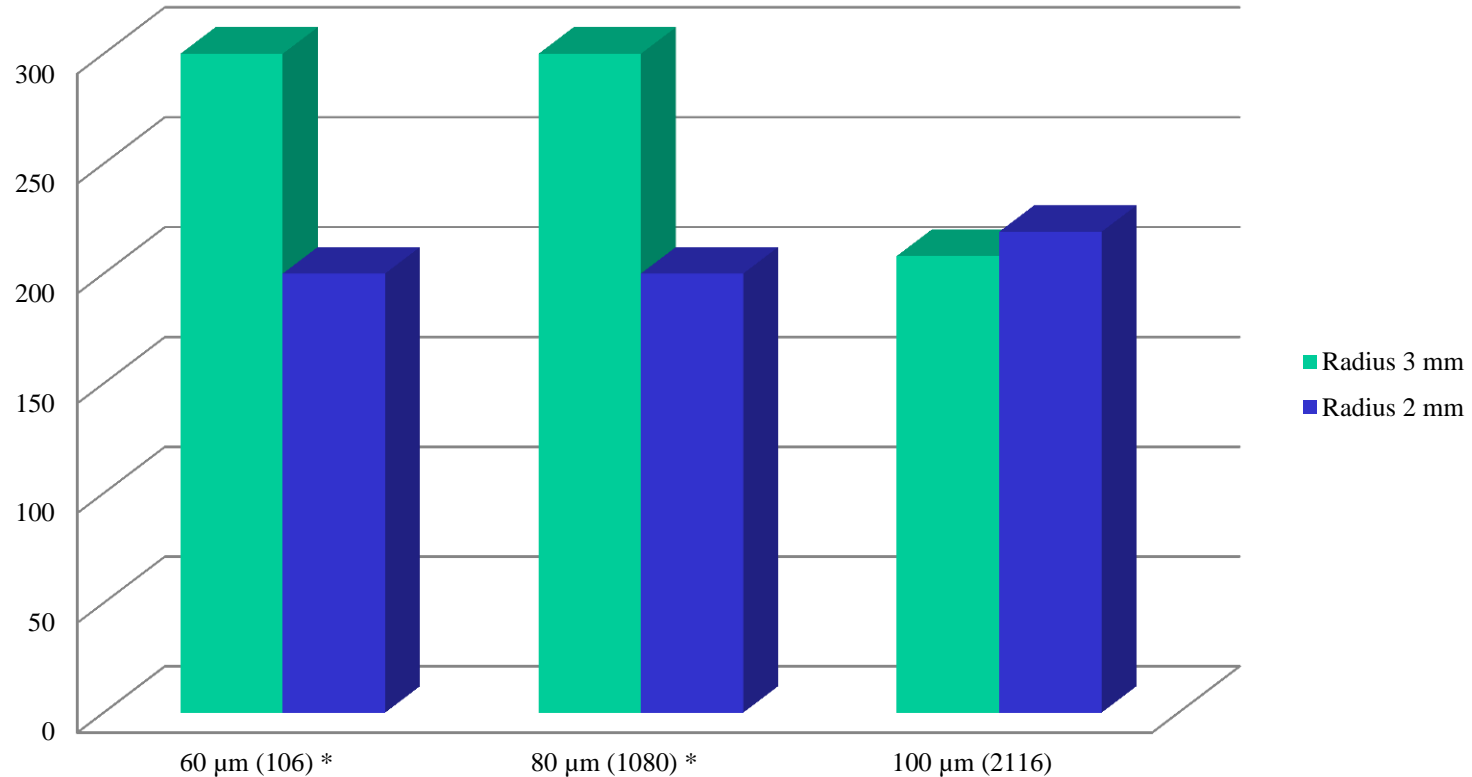
IS410, Number of bends, bending angle 180



* Prediction based on pilot tests, extensive test series will soon be completed.

Semi-Flex – Test Results

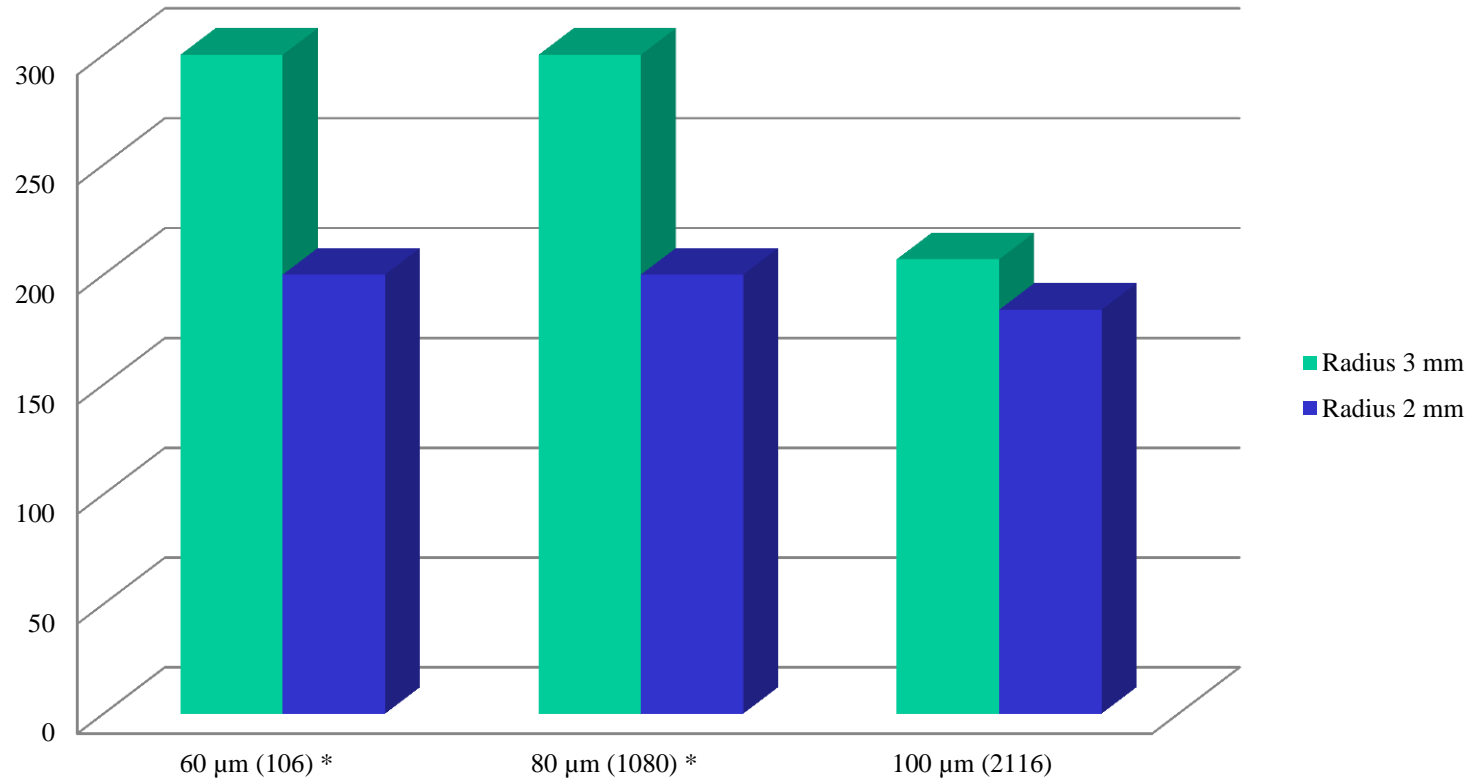
408HR, Number of bends, bending angle 180



* Prediction based on pilot tests, extensive test series will soon be completed.

Semi-Flex – Test Results

370HR, Number of bends, bending angle 180



* Prediction based on pilot tests, extensive test series will soon be completed.

- **Single ply constructions using HD copper give excellent performance characteristics (>100 bends)**
- **More testing planned for multiple ply constructions with results due in Q1 2012**
- **Cost and performance benefits versus traditional flex circuit materials such as PET, PEN and polyimide**
- **Conventional PCB processing and known design aspects of reinforced substrates**