rate, resulted in a decrease in flexural modulus of 32% and 29% in the full 70% w/w and hollow 2mm 50% w/w pins respectively.

	Fiber diameter range (µm)	**Distance between fibers (µm)**	**Fibers in layer thickness**	**Layer thickness (µm)**	**Distance between layers (µm)**
Full pin. OD 2mm. 50% w/w fiber	10.18-13.5 (Fig 8)	2.80-16.02 (Fig 9)	4 – 6 (Fig 10)	91.09 (Fig 10)	14.35 - 41.59 (Fig 12)
Hollow pin. OD 2mm, ID 1mm. 50% w/w fiber	11-15 (Fig 13)	2.04-10.11 (Fig 14)			11.96-33.6 (Fig 16)

Table 2b: Measured structural parameters relating the reinforcing fibers and biocomposite layers within a biocomposite pin

Area of Entire Cross Section	**Sum of Fiber Area**	**Remaining Area**	**Percentage of Fiber to Polymer**
22579 µm	11043 µm	1.1536e+04 µm	48.90%

Table 2c: Measured volume percentage of fiber as measured from cross-section of biocomposite full pin implant of OD 2mm, 50% w/w fiber (see Fig 11)

Area of Entire Cross Section	**Sum of Fiber Area**	**Remaining Area**	**Percentage of Fiber to Polymer**
14094 µm	9645.14 µm	4448.86 µm	68.43%

Table 2d: Measured volume percentage of fiber as measured from cross-section of biocomposite full plate implant of OD 2mm, ID 1mm, 50% w/w fiber (see Fig 15)