

Table S1. Material properties of the self-lubricating polymer composite bearing materials.

Property	Fibre-reinforced thermoset	Fabric-reinforced thermoset	Thermoplastic
Density [g/cm ³]	1.42 ¹	1.25 ⁴	1.40 ⁶
Compressive Modulus of Elasticity [MPa]	1500 ¹	2800 ⁶	3280 ⁵
Tensile Strength [MPa]	– ²	55 ⁴	66 ⁵
Compressive Yield Strength [MPa]	90 ^{3, 6}	90 ⁴	91 ⁵
Hardness:	– ²		
Rockwell M		90 ⁴	
Shore D			83 ⁵
Thermal Conductivity [W/m·K]	0.3 ¹	0.22 ⁶	0.25 ⁶
Maximum Operating Temperature [°C]	160 ¹	130 ⁶	110 ⁵

From ¹ [29], ² Information missing, ³ According to EN ISO 604:2003, ⁴ [30], ⁵ [31], ⁶ provided directly by the bearing manufacturer.

Table S2. Volume fraction of the internal phases in the fibre-reinforced thermoset measured using XMT with two different objectives.

Internal phase	Low resolution, 4X, [vol.%]	High resolution, 20X, [vol.%]
Polyester filaments and epoxy resin containing graphite	76.72	78.75
PTFE particles	22.98	19.93
Pores	0.22	1.25
Higher density particles (impurities)	0.08	0.07

Table S3. Concentration of inorganic constituents in the fibre-reinforced thermoset.

Element	Concentration wt.%	Comment
Al	0.1902 ± 0.0058	Potential impurity from graphite or contamination during sample preparation
Mg	0.1132 ± 0.0012	Potential impurity from graphite or contamination during sample preparation
S	0.0914 ± 0.0057	Potential curing agent of epoxy resin
Ti	0.0689 ± 0.0066	Potential impurity from graphite or contamination during sample preparation
Fe	0.0567 ± 0.0017	Potential impurity from graphite or contamination during sample preparation
Si	0.0310 ± 0.0011	Possibly used as a filler
Sb	0.0078 ± 0.0002	Potential impurity from graphite or commonly used as flame retardant in polymers such as Sb ₂ O ₃ [33-34]
P	0.0038 ± 0.0001	Potential curing agent of epoxy resin
Cu	0.0029 ± 0.0003	Potential impurity from graphite or contamination during sample preparation
Zr	0.0028 ± 0.0002	
Mn	0.0016 ± 6×10 ⁻⁵	Potential impurity from graphite or contamination during sample preparation

Table S4. Chemical composition of the stainless steel (SS 2333) in wt.%, Fe makes up the balance [28].

C	Si	Mn	P	S	Cr	Ni
Max 0.05	Max 1.0	Max 2.0	Max 0.045	Max 0.03	17.0 – 19.0	8.0 – 11.0