



HIGH PERFORMANCE PEEK POLYMERS

Victrex introduces its new carbon fibre filled compounds which combine easy processability with superior mechanical performance and improved fatigue performance compared to current high strength grade range of carbon filled PEEK.

These new products combine Victrex's high flow resins with 20% and 40% carbon fibres utilising a specialised compounding technology.

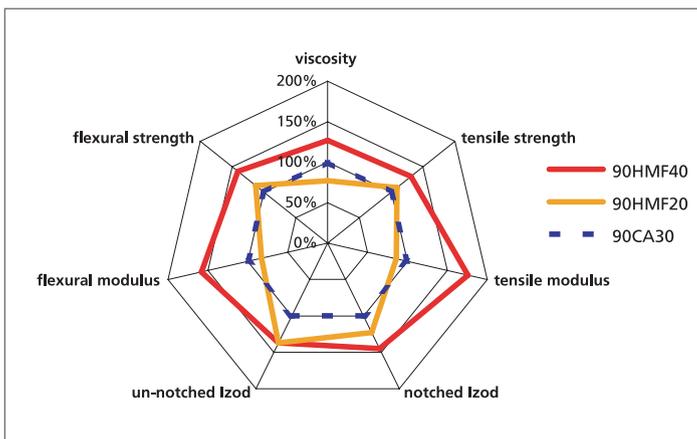
**Compared to existing carbon fibre filled high flow compounds the new 90HMF products stand out with several key advantages (Figure 1)**

- More than 10-fold improvement in cyclic fatigue performance (compare Figure 3)
- 90HMF20 has improved melt flow and toughness compared to 30% carbon filled standard grade
- 90HMF40 shows about 50% increase in strength, stiffness and toughness compared to 30% carbon filled standard grade
- Maintaining easy processability



Bearing cage

**Figure 1: Performance space of VICTREX® 90HMF20 and 90HMF40 compared to standard high strength VICTREX® 90CA30**



**These new high performance products are targeted at applications**

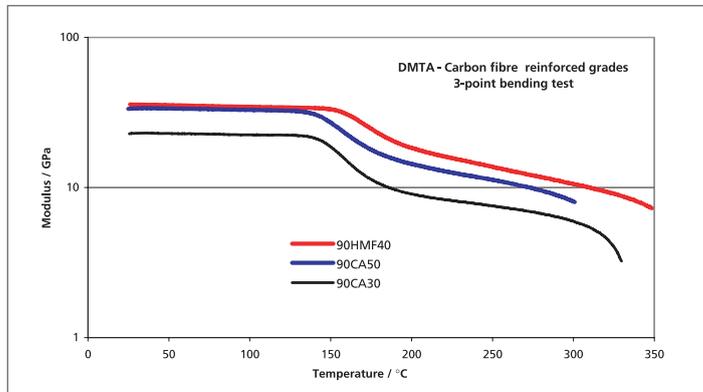
- requiring improved strength and stiffness while retaining easy processability compared to higher filled products of equivalent performance
- where improved ductility is required, i.e. large strains during single assembly procedures as in split seal rings or bearing shells
- where extended endurance in cyclic loadings is required

VICTREX® HMF-Grades

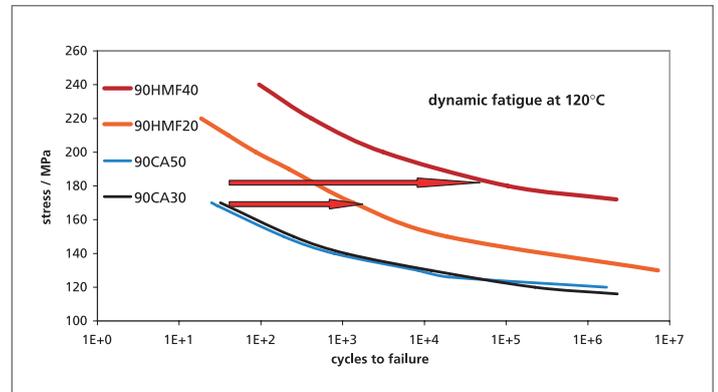
**Table 1: Typical performance data of VICTREX® 90HMF20 and 90HMF40**

PROPERTY	TEST METHOD	TEST CONDITION	UNIT	90HMF20	90HMF40
Melt viscosity / 0.5mm die	Victrex	400°C	Pa.s	200	330
Tensile modulus	ISO 527	23°C	GPa	22	45
Tensile strength	ISO 527	23°C	MPa	290	350
Tensile elongation	ISO 527	23°C	%	1,9	1,3
Flexural modulus	ISO 178	23°C	GPa	19	36
Flexural strength	ISO 178	23°C	MPa	400	500
Izod Impact strength (notched)	ISO 180	23°C	kJ/m <sup>2</sup>	8,5	10
Izod Impact strength (unnotched)	ISO 180	23°C	kJ/m <sup>2</sup>	55	55
Heat Distortion Temperature	ISO 75A-f	1,8MPa	°C	347	349
Specific gravity	ISO 1183	23°C	g/cm <sup>3</sup>	1,36	1,44

**Figure 2: VICTREX® 90HMF40 offers superior stiffness compared to similar VICTREX® high strength compounds, especially at temperatures above the glass transition (T<sub>g</sub>= 143°C)**



**Figure 3: Tensile fatigue performance of 90HMF20 and 90HMF40 is significantly increased at 120°C compared to existing VICTREX® high strength products**



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