

Creep

PPS has an excellent creep resistance comparing with other engineering plastics. Especially, creep deformation is very small and may negligible below glass transition temperature; 90°C. Creep property is shown by apparent creep modulus; $E(t)$ which is a function of time; t as follows;

$$E(t) = \sigma / \epsilon(t)$$

Where σ denotes applied stress and $\epsilon(t)$ denotes creep strain as a function of time; t .

In Figs.1 to 6, flexural creep data are shown at room temperature to elevated temperature for DIC.PPS main four grades. Creep phenomenon will investigate not only under flexural stress but also under tensile, compressive and shear stresses. However, the tendency of creep deformation may be same as flexural creep.

fracture will not occur permanently. Creep endurance limit is defined in DIN-50117 as follows; Average strain speed is below $1 \times 10^{-3} \%$ /hour between 25 to 35 hours after loading. Experimentally, the creep endurance limit of PPS is about 1/3 of the static strength at the same testing conditions.

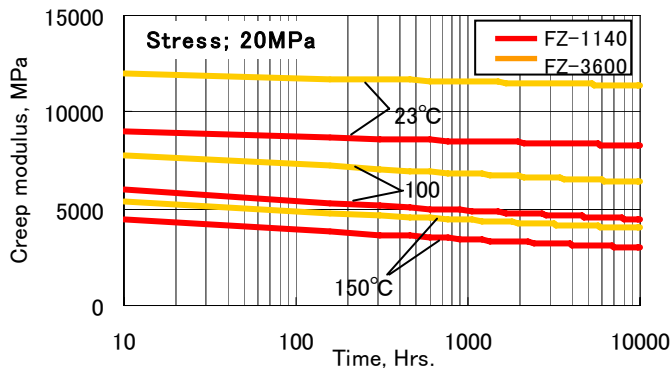


Fig.1 Flexural creep modulus vs. temperature

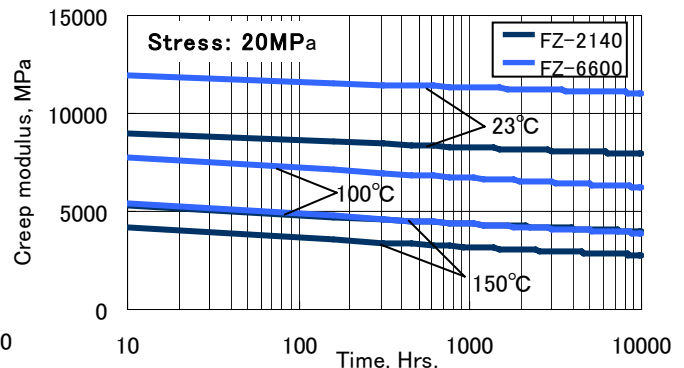


Fig.4 Flexural creep modulus vs. temperature

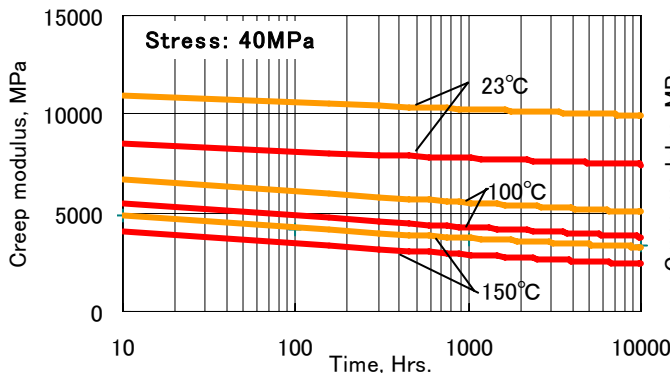


Fig.2 Flexural creep modulus vs. temperature

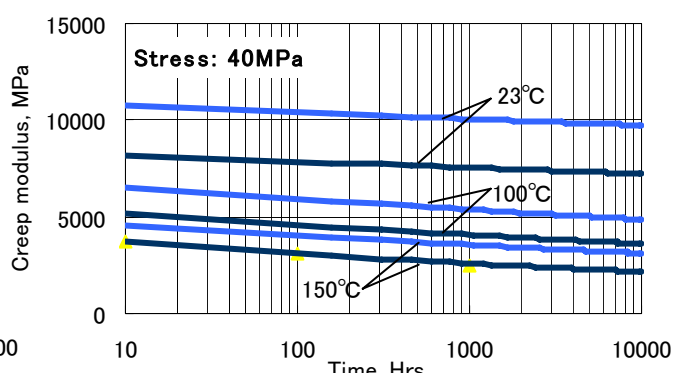


Fig.5 Flexural creep modulus vs. temperature

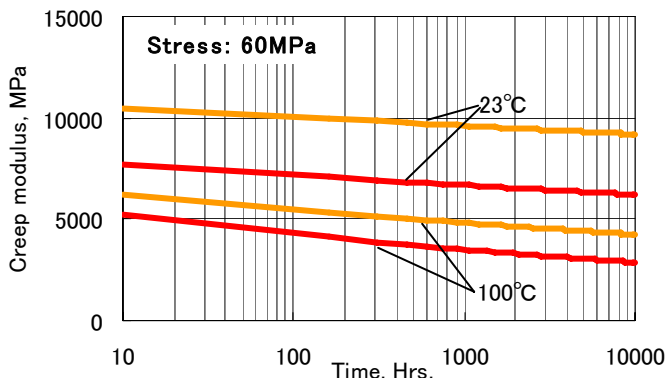


Fig.3 Flexural creep modulus vs. temperature

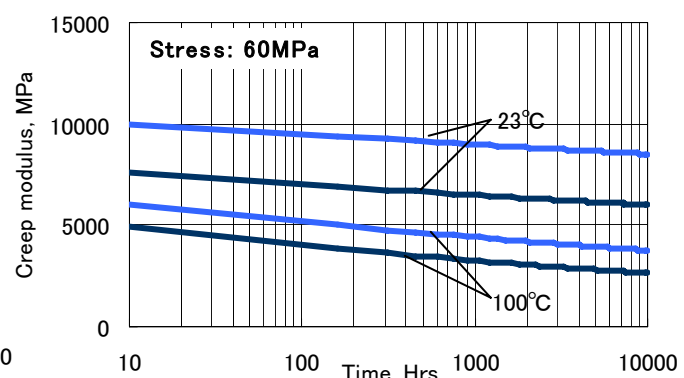


Fig.6 Flexural creep modulus vs. temperature



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