Celanese
The chemistry inside innovation™

CELSTRAN® PA66-GF50-0111P10/11

CELSTRAN® Long Fibre

Material code according to ISO 1043-1: PA66

Nylon 66/6 Copolymer reinforced by 50 weight percent long glass fibers. The pellets are cylindrical and normally as well as the embedded fibers 10 mm long.

Parts molded of CELSTRAN have outstanding mechanical properties such as high strength and stiffness combined with high heat deflection. The notched impact strength is increased at elevated and low temperatures due to the fiber skeleton built in the parts. The long fiber reinforcement reduces creep significantly.

The very isotropic shrinkage in the molded parts minimizes the warpage.

Complex parts can be manufactured with high reproducibility by injection molding.

Can be used for substituting die cast metal with the advantage of Weight reduction, no corrosion problems, no post treatment.

Product information

Resin Identification	PA666-LGF50	ISO 1043
Part Marking Code	>PA666-LGF50<	ISO 11469

Typical mechanical properties

	dry/cond.		
Tensile modulus	16500 / 13000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	280 / 198	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.3 / 2.3	%	ISO 527-1/-2
Flexural modulus	13400 / 11500	MPa	ISO 178
Flexural strength	380 / 300	MPa	ISO 178
Flexural strain at failure	3.2 / 4	%	ISO 178
Charpy impact strength, 23°C	105 / 114	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	95 / -	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	49 / 51	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	58 / -	kJ/m²	ISO 179/1eA
Izod impact strength, -30°C	74 / -	kJ/m²	ISO 180/1U
Poisson's ratio	0.33 / 0.33[C]		

[C]: Calculated

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	240 / *	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	241 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	226 / *	°C	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	14 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	67 / *	E-6/K	ISO 11359-1/-2

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94

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Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1 / *	%	Sim. to ISO 62
Density	1560 / -	kg/m³	ISO 1183

Injection

Back pressure	3	MPa

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Special characteristics	Heat stabilised or stable to heat

Additional information

Injection molding

Preprocessing

It is recommended to dry in a dehumidifying dryer: 4 hours at 80 °C

Processing

During the processing of CELSTRAN it is important to watch and control melt shear, for excessive shear reduces fiber length and mechanical performance as well.

Processing recommendation:

- Conventional 3 zone screw, screw diameter minimum 40 mm
- Design flow channels for low melt shear
- Back pressure and screw rotation to realize a continous plastification performance and thus a homogeneous melt.
- Apply higher temperature settings than for short fiber compounds

Melt temperature (in the srew anteroom) 310-325 °C
Mold surface temperature 90-120 °C

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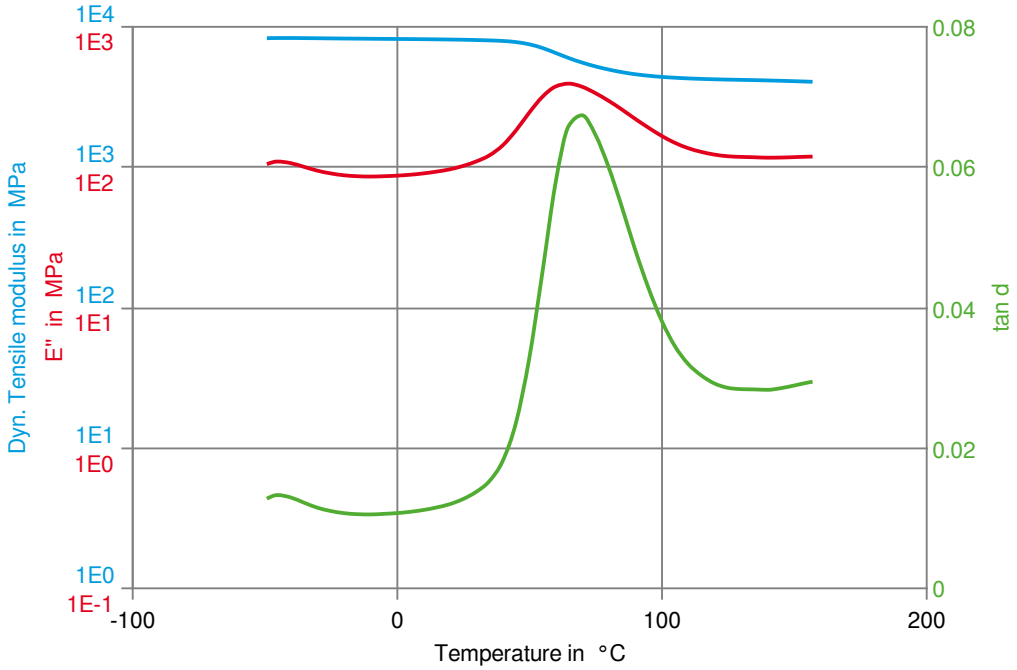
Dynamic Tensile modulus-temperature (dry)



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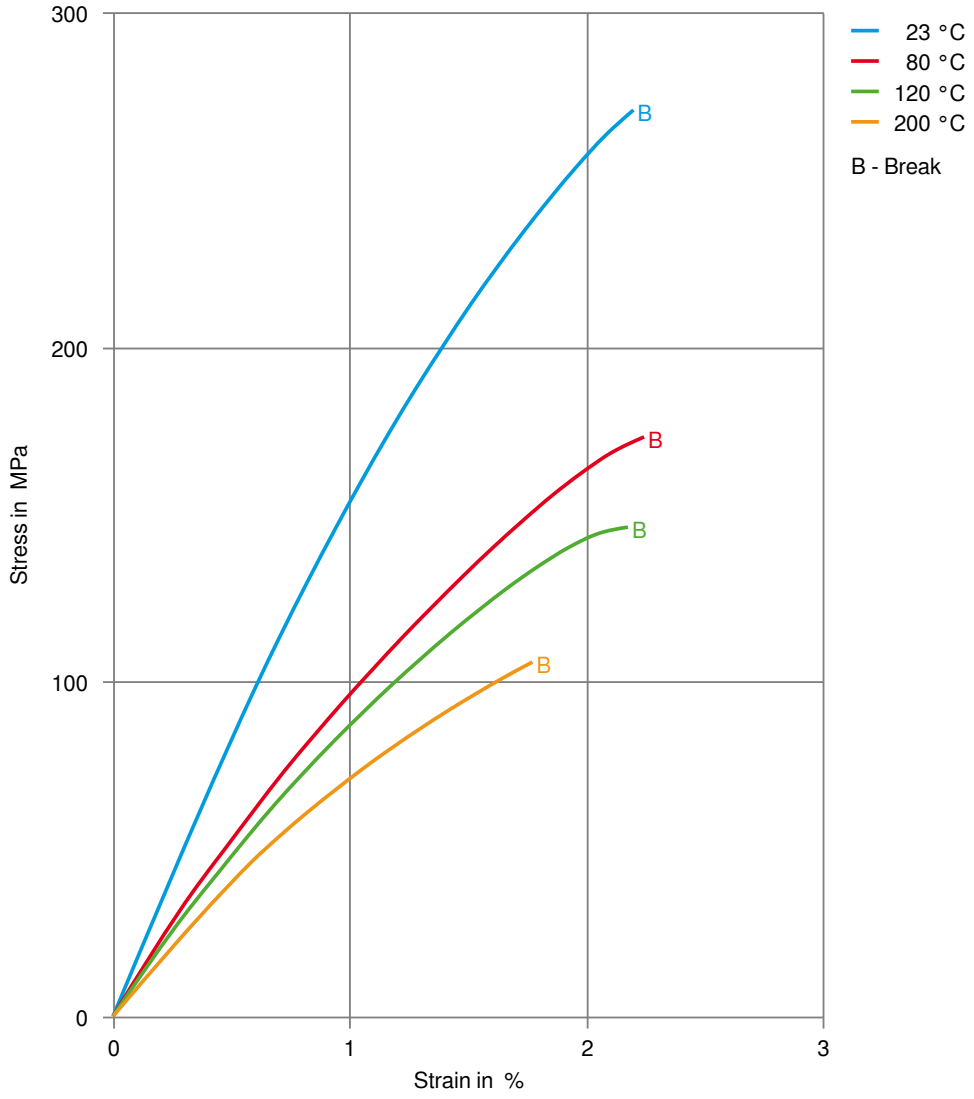
Stress-strain (dry)



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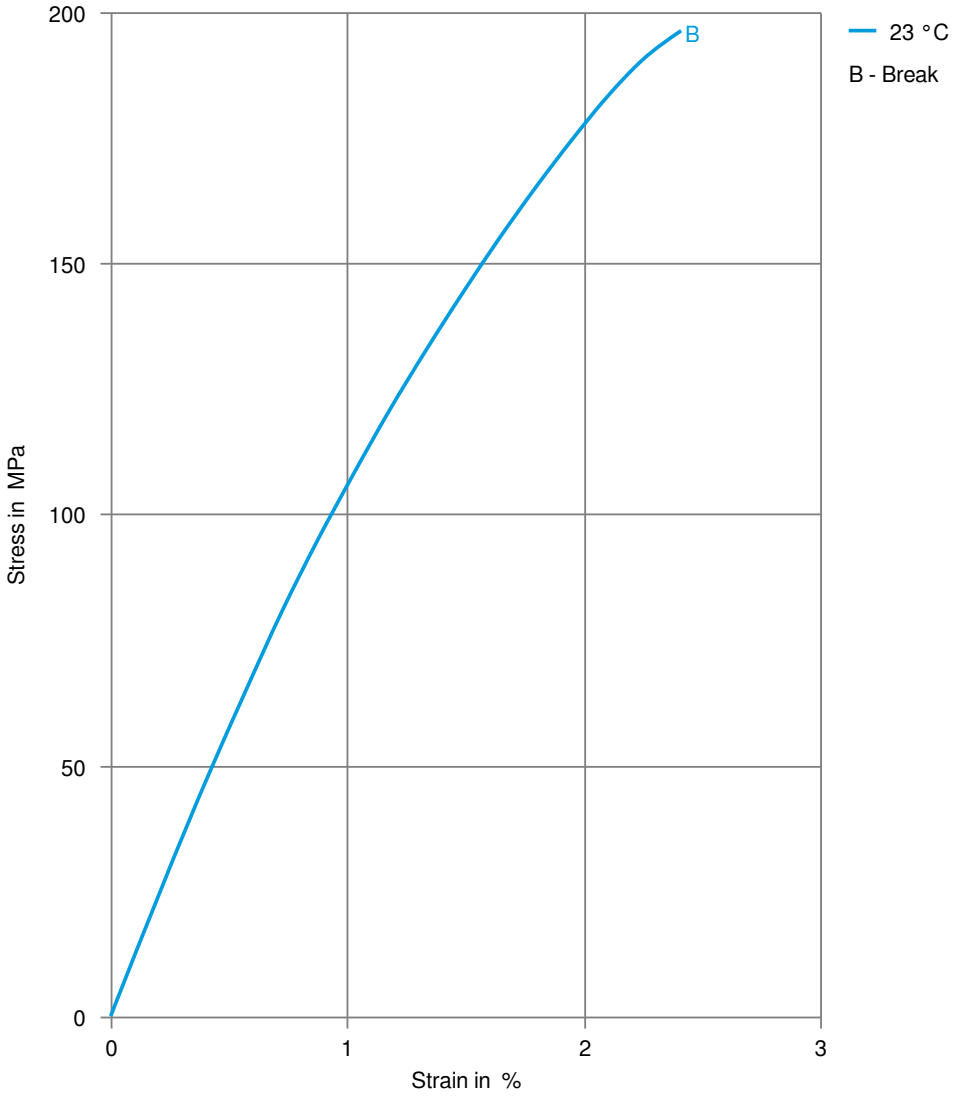
Stress-strain (cond.)



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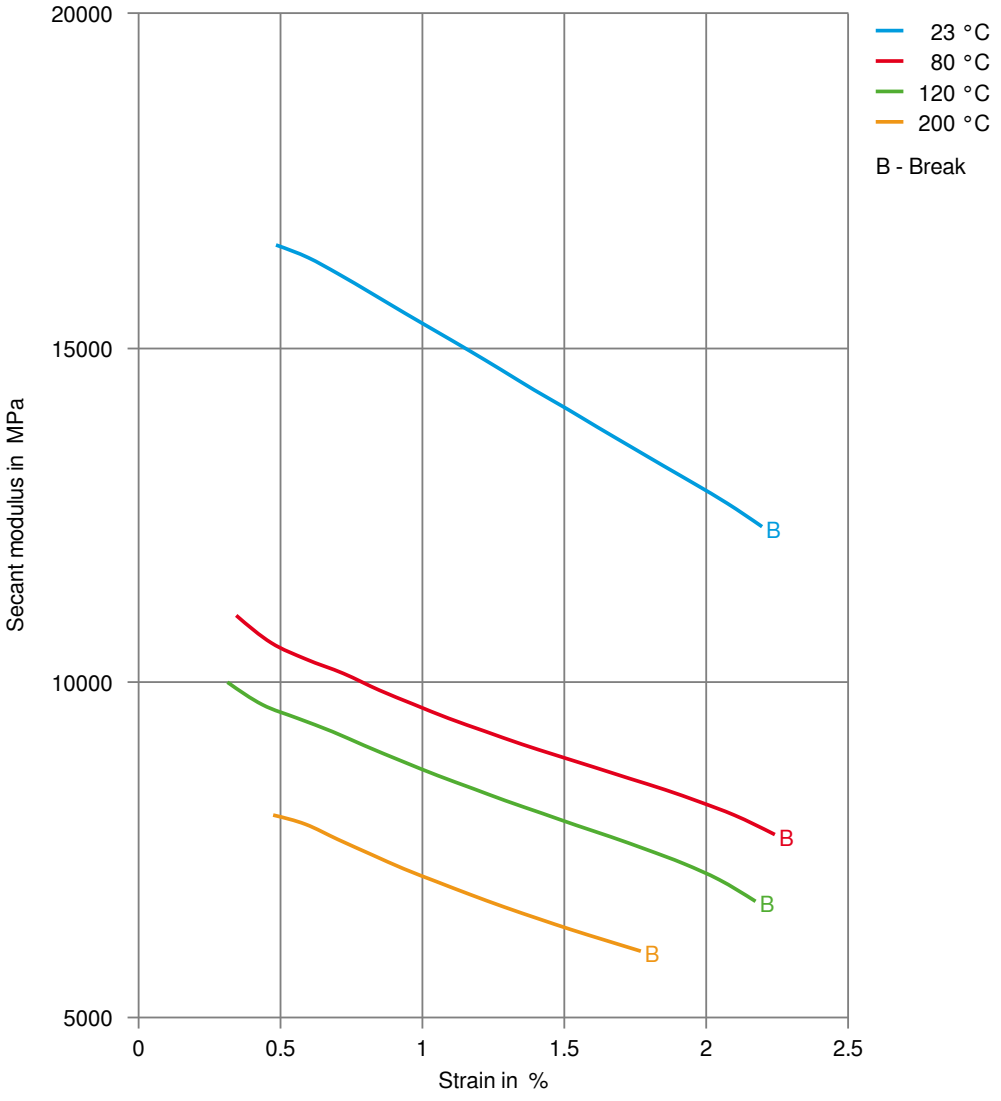
Secant modulus-strain (dry)



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Secant modulus-strain (cond.)