

Ultramid® A3WG3

PA66-GF15

BASF

Glass fibre reinforced and heat aging resistance injection moulding grade for machine components and housings of medium stiffness.

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	60 / *	cm³/10min	ISO 1133
Temperature	275 / *	°C	-
Load	5 / *	kg	-
Molding shrinkage, parallel	0.8 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.1 / *	%	ISO 294-4, 2577

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	6000 / 3700	MPa	ISO 527
Stress at Break	120 / 80	MPa	ISO 527
Strain at Break	2.6 / 12	%	ISO 527
Tensile Creep Modulus, 1000h	* / 2600	MPa	ISO 899-1
Impact Strength (Charpy), +23°C	45 / 70	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	43 / -	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	8 / 11	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	7 / -	kJ/m²	ISO 179/1eA

Thermal Properties	dry / cond	Unit	Test Standard
ISO Data			
Melting Temperature (10°C/min)	260 / *	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	240 / *	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	250 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	250 / *	°C	ISO 306
Coeff. of Linear Therm. Expansion, parallel	33 / *	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	101 / *	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	HB / *	class	UL 94
Thickness tested	1.5 / *	mm	-
UL recognition	yes / *	-	-
Burning Behav. at thickness h	HB / *	class	UL 94
Thickness tested	0.8 / *	mm	-
UL recognition	yes / *	-	-
Oxygen index	24 / *	%	ISO 4589-1/-2

Electrical Properties	dry / cond	Unit	Test Standard
ISO Data			
Relative permittivity, 1MHz	3.5 / 5.5	-	IEC 62631-2-1
Dissipation Factor, 100Hz	140 / 3000	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	140 / 3000	E-4	IEC 62631-2-1
Volume Resistivity	1E13 / 1E10	Ohm*m	IEC 62631-3-1
Surface Resistivity	* / 1E10	Ohm	IEC 62631-3-2
Electric Strength	40 / 34	kV/mm	IEC 60243-1
Comparative tracking index	- / 450	-	IEC 60112

Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	7 / *	%	Sim. to ISO 62
Humidity absorption	2.2 / *	%	Sim. to ISO 62
Density	1230 / -	kg/m³	ISO 1183

Material Specific Properties	dry / cond	Unit	Test Standard
ISO Data			
Viscosity number	145 / *	cm³/g	ISO 307, 1157, 1628

Rheological calculation properties	Value	Unit	Test Standard
ISO Data			
Density of melt	1070	kg/m³	-
Thermal Conductivity of Melt	0.205	W/(m K)	-

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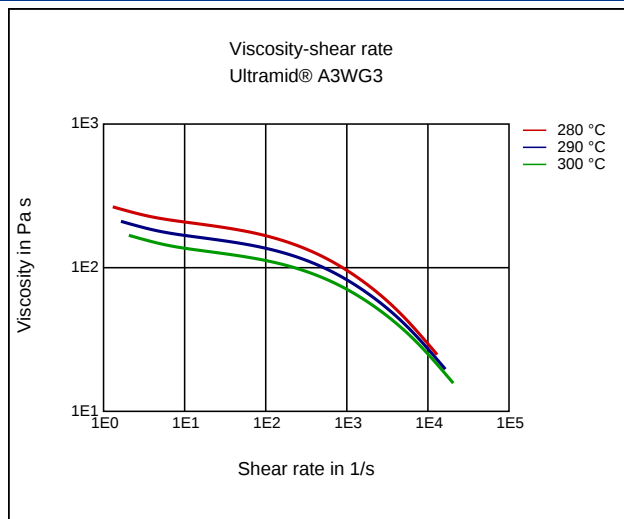
Spec. heat capacity of melt	2570	J/(kg K)	-
Ejection temperature	190	°C	-

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	290	°C	ISO 294
Injection Molding, mold temperature	80	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

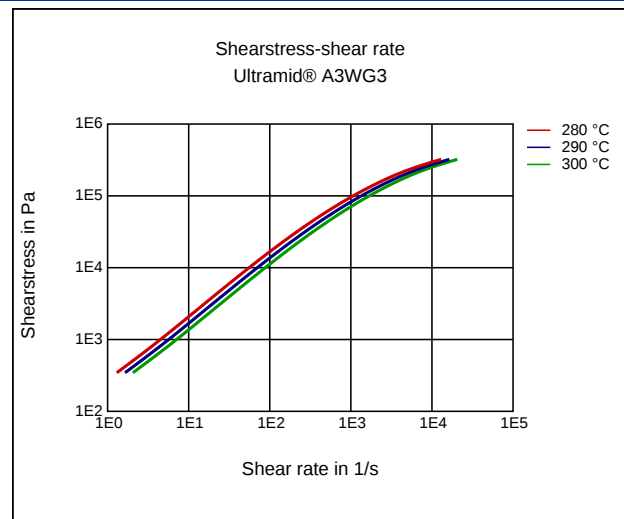
Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	80	°C	-
Pre-drying - Time	4	h	-
Processing humidity	≤0.15	%	-
Melt temperature	280 - 300	°C	-
Mold temperature	80 - 90	°C	-

Diagrams

Viscosity-shear rate



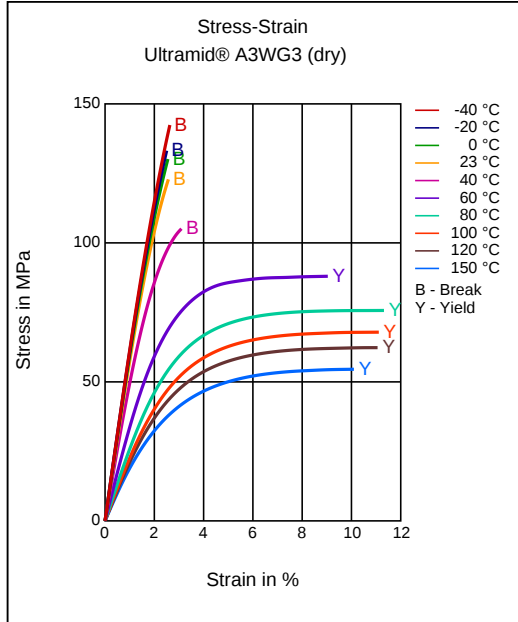
Shearstress-shear rate



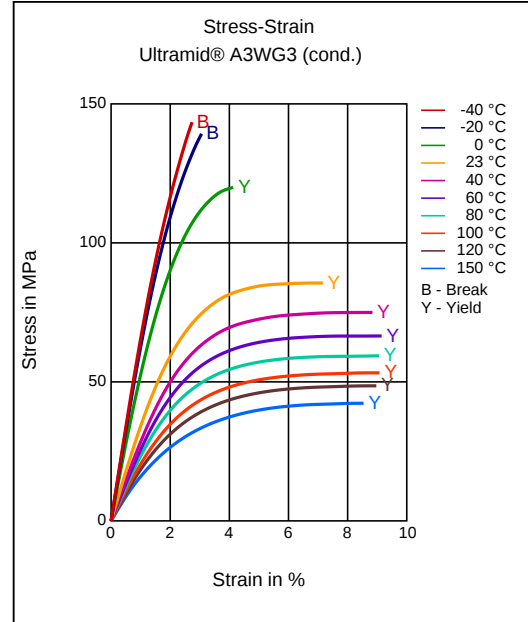
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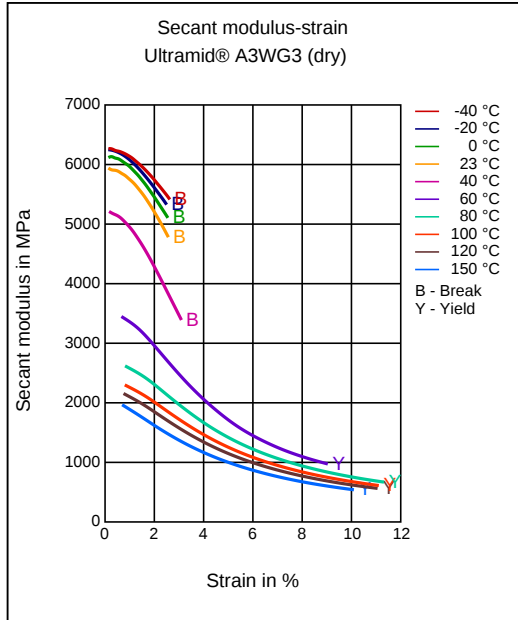
Stress-strain



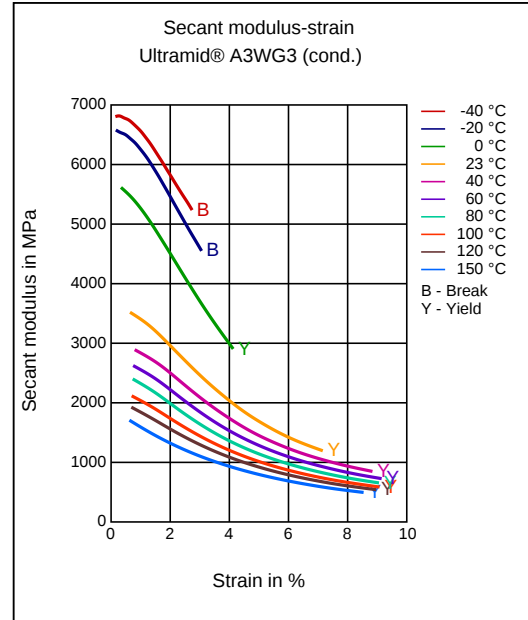
Stress-strain



Secant modulus-strain



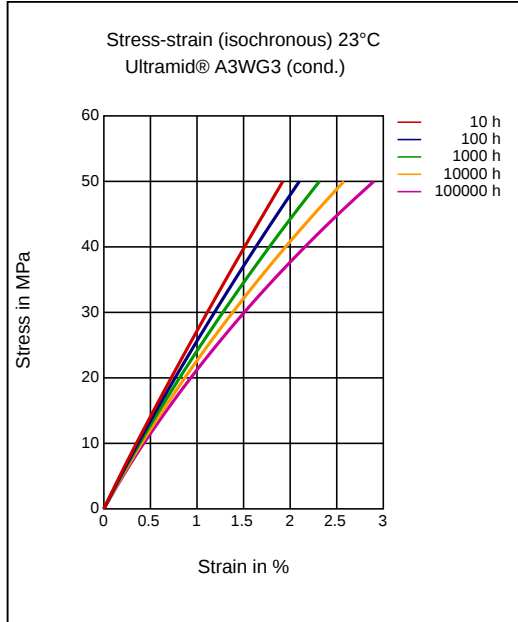
Secant modulus-strain



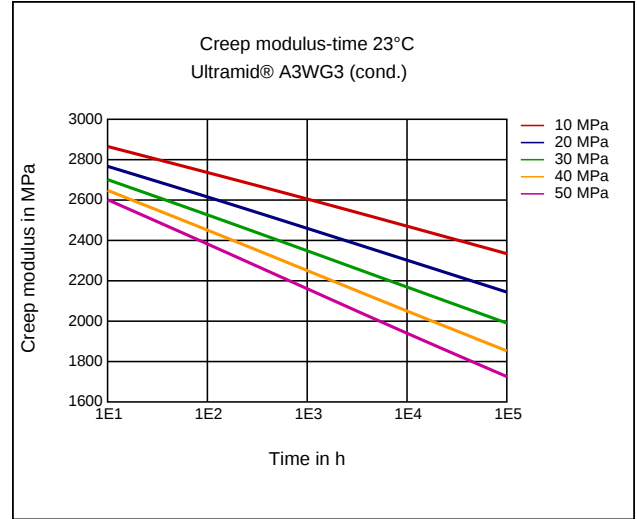
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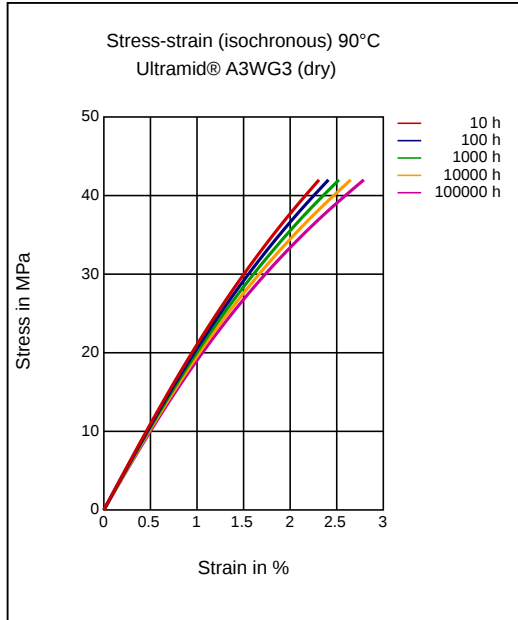
Stress-strain (isochronous) 23°C



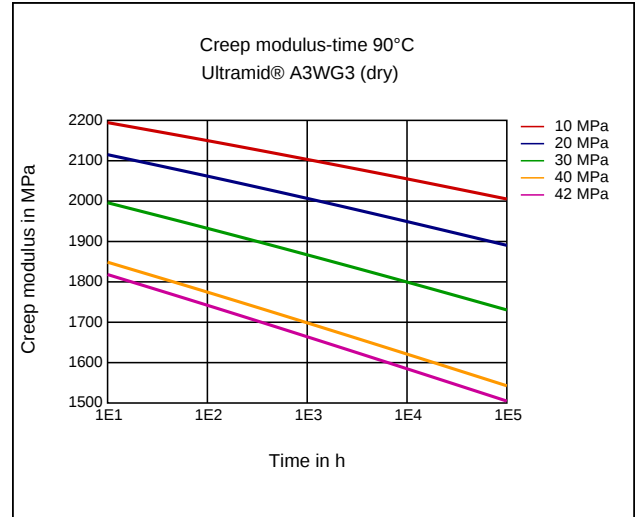
Creep modulus-time 23°C



Stress-strain (isochronous) 90°C



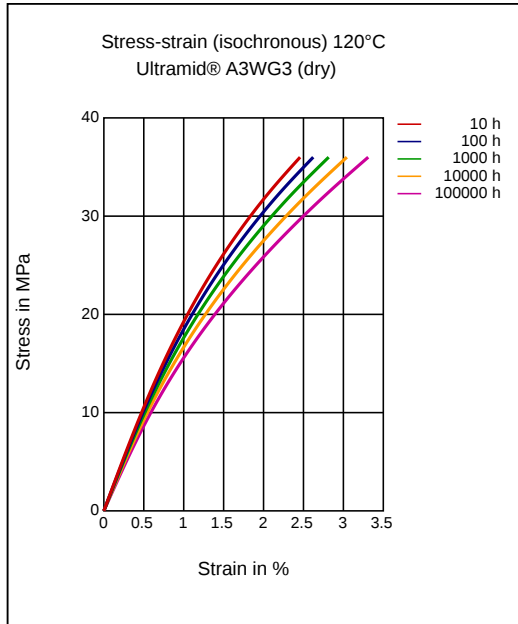
Creep modulus-time 90°C



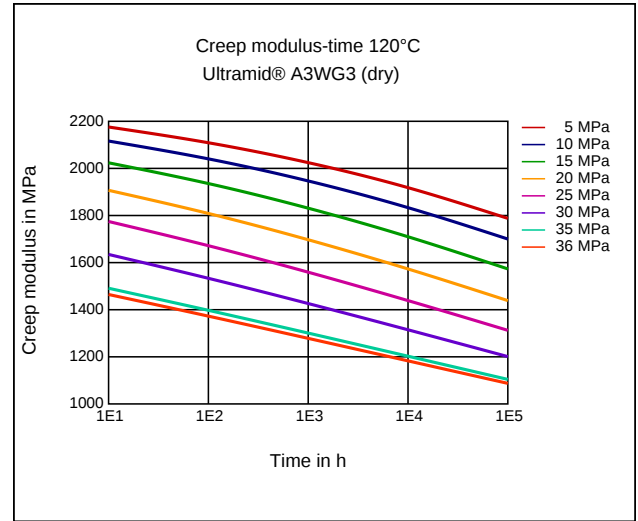
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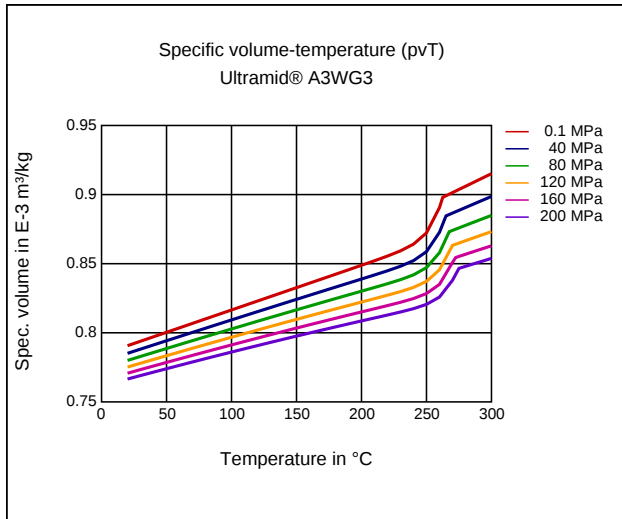
Stress-strain (isochronous) 120°C



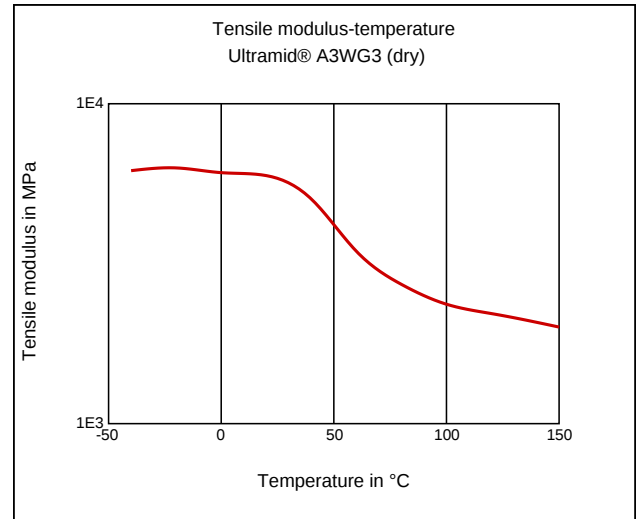
Creep modulus-time 120°C



Specific volume-temperature (pvT)



Tensile Modulus-Temperature

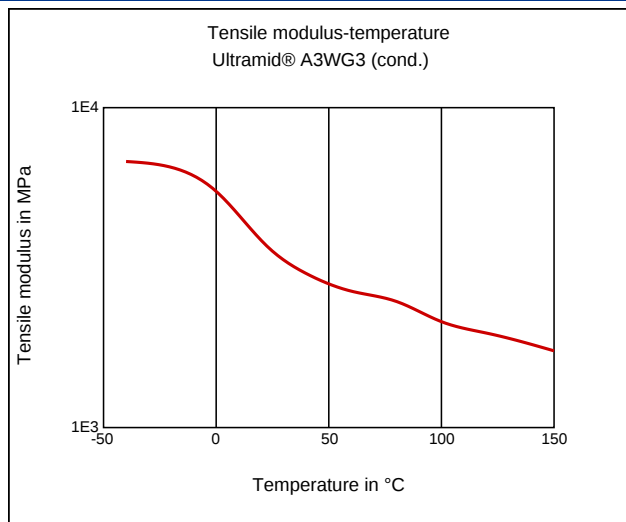


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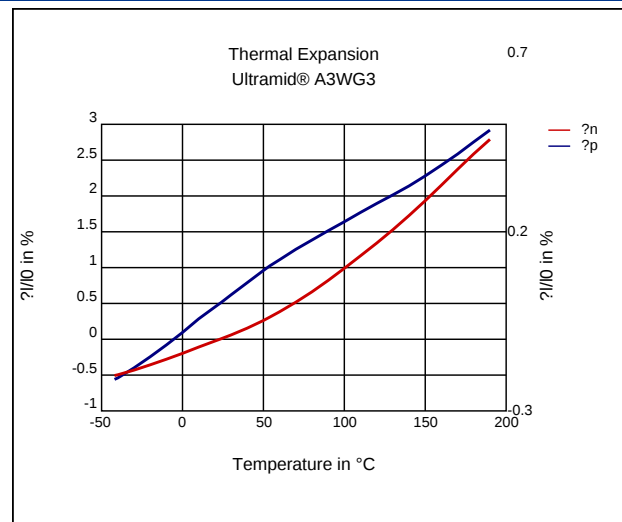
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Tensile Modulus-Temperature



Coeff. of linear thermal expansion, normal



Characteristics

Processing

Injection Molding

Delivery form

Pellets

Additives

Lubricants, Release agent

Special Characteristics

Heat aging stabilized

Injection Molding

PREPROCESSING

Pre/Post-processing, max. allowed water content: .15 %

Pre/Post-processing, Pre-drying, Temperature: 80 °C

Pre/Post-processing, Pre-drying, Time: 4 h

PROCESSING

injection molding, Melt temperature, range: 280 - 300 °C

injection molding, Melt temperature, recommended: 290 °C

injection molding, Mold temperature, range: 80 - 90 °C

injection molding, Mold temperature, recommended: 80 °C

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)