

# Stanyl® HFX31S

## PA46–GF20 FR(40)

20% Glass Fiber Reinforced, High Flow, Halogen free and free of red phosphorous

Print Date: 2025–10–23

Stanyl® HFX31S is an electro–friendly & halogen–free flame–retarded high heat polyamide that offers an excellent combination of high CTI, flow and weld–line strength. HFX–grades are often used in connectors such as USB type C.

PROPERTIES	TYPICAL DATA	UNIT	TEST METHOD
<b>RHEOLOGICAL PROPERTIES</b>			
	<b>DRY / COND</b>		
Molding shrinkage (parallel)	0.45 / *	%	ISO 294–4
Molding shrinkage (normal)	1.4 / *	%	ISO 294–4
<b>MECHANICAL PROPERTIES</b>			
	<b>DRY / COND</b>		
Tensile modulus	7600 / 5000	MPa	ISO 527–1/–2
Tensile modulus (120°C)	4100 / –	MPa	ISO 527–1/–2
Tensile modulus (160°C)	3700	MPa	ISO 527–1/–2
Stress at break	120 / 85	MPa	ISO 527–1/–2
Stress at break (120°C)	70 / –	MPa	ISO 527–1/–2
Stress at break (160°C)	60	MPa	ISO 527–1/–2
Strain at break	3 / 3.4	%	ISO 527–1/–2
Strain at break (120°C)	5.5 / –	%	ISO 527–1/–2
Strain at break (160°C)	6	%	ISO 527–1/–2
Flexural modulus	7000 / 4800	MPa	ISO 178
Flexural modulus (120°C)	4300	MPa	ISO 178
Flexural modulus (160°C)	3900	MPa	ISO 178
Flexural strength	190 / 140	MPa	ISO 178
Flexural strength (120°C)	100	MPa	ISO 178
Flexural strength (160°C)	90	MPa	ISO 178
Charpy impact strength (+23°C)	49 / 53	kJ/m²	ISO 179/1eU
Charpy notched impact strength (+23°C)	7 / 10	kJ/m²	ISO 179/1eA

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PROPERTIES	TYPICAL DATA	UNIT	TEST METHOD
<b>THERMAL PROPERTIES</b>			
	<b>DRY / COND</b>		
Melting temperature (10°C/min)	295 / *	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	285 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion (parallel)	0.23 / *	E-4/°C	ISO 11359-1/-2
Coeff. of linear therm. expansion (normal)	0.67 / *	E-4/°C	ISO 11359-1/-2
Burning Behav. at 3.0 mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Thickness tested	3 / *	mm	IEC 60695-11-10
UL recognition	Yes / *	—	—
Relative Temperature Index – electrical	120	°C	UL746B
RTI electrical (Thickness (1) tested)	0.2	mm	UL746B
<b>ELECTRICAL PROPERTIES</b>			
	<b>DRY / COND</b>		
Volume resistivity	>1E13 / 4E10	Ohm*m	IEC 62631-3-1
Electric strength	33 / 30	kV/mm	IEC 60243-1
Comparative tracking index	550 / —	V	IEC 60112
Relative permittivity (1GHz)	3.6 / 3.75	—	IEC 61189-2-721
Relative permittivity (10GHz)	3.6 / 3.7	—	IEC 61189-2-721
<b>OTHER PROPERTIES</b>			
	<b>DRY / COND</b>		
Humidity absorption	2.7 / *	%	Sim. to ISO 62
Density	1360 / —	kg/m³	ISO 1183

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