



TECHNICAL DATA SHEET

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COEXFlex™ TPE 40D 3D Printer Filament

Thermoplastic copolyester elastomer (TPC-ET) · Product code CX18 · 1.75 mm and 2.85 mm

Base resin: Thermoplastic copolyester elastomer (TPC-ET)

Typical values for the base resin. Printed parts vary with print settings, orientation and moisture content.

Physical properties			
Property	Standard	Unit	Typical value
Density	ISO 1183	g/cm ³	1.16
Melt mass-flow rate (MFR), 190 °C / 2.16 kg	ISO 1133	g/10 min	5.6
Melt volume-flow rate (MVR), 190 °C / 2.16 kg	ISO 1133	cm ³ /10 min	5.00
Molding shrinkage, across flow	ISO 294-4	%	0.40
Molding shrinkage, flow	ISO 294-4	%	0.20
Water absorption, 24 hr, 23 °C	ISO 62	%	0.60
Water absorption, saturation, 23 °C, 2.00 mm	ISO 62	%	0.70
Water absorption, equilibrium, 23 °C, 2.00 mm, 50% RH	ISO 62	%	0.20
Shore hardness, Shore D	ISO 7619		43
Shore hardness, Shore D, 15 sec	ISO 7619		37
UL 94 flame rating, 0.8 mm and 1.5 mm	UL 94		HB

Mechanical properties

Property	Standard	Unit	Typical value
Tensile modulus	ISO 527-2	MPa (psi)	60.0 (8,700)
Tensile stress at break	ISO 527-2	MPa (psi)	26.0 (3,770)
Tensile stress at 5.0% strain	ISO 527-2	MPa (psi)	2.40 (348)
Tensile stress at 10% strain	ISO 527-2	MPa (psi)	4.60 (667)
Tensile stress at 50% strain (two values listed, not labeled by the maker)	ISO 527-2	MPa (psi)	8.40 (1,220) / 7.50 (1,090)
Tensile strain at break (two values listed, not labeled by the maker)	ISO 527-2	%	> 300 / > 50
Nominal tensile strain at break	ISO 527-2	%	500
Flexural modulus	ISO 178	MPa (psi)	60.0 (8,700)
Tensile creep modulus, 1 hr	ISO 899-1	MPa (psi)	54.0 (7,830)
Tensile creep modulus, 1000 hr	ISO 899-1	MPa (psi)	40.0 (5,800)
Abrasion resistance	ISO 4649	mm ³	200
Tear strength, across flow	ISO 34-1	kN/m (lbf/in)	96 (550)
Tear strength, flow	ISO 34-1	kN/m (lbf/in)	100 (580)
Charpy notched impact strength, -40 °C, -30 °C, 23 °C	ISO 179/1eA		No break
Charpy unnotched impact strength, -30 °C, 23 °C	ISO 179/1eU		No break
Notched Izod impact strength, -40 °C, 23 °C	ISO 180/1A		No break
Tensile impact strength, 23 °C	ISO 8256/1	kJ/m ² (ft·lb/in ²)	230 (109)

Thermal properties

Property	Standard	Unit	Typical value
Brittleness temperature	ISO 974	°C (°F)	-97.0 (-143)
Glass transition temperature, 10 °C/min	ISO 11357-2	°C (°F)	-50.0 (-58.0)
Melting temperature, 10 °C/min	ISO 11357-3	°C (°F)	152 (306)
Coefficient of linear thermal expansion, flow	ISO 11359-2	cm/cm/°C (in/in/°F)	1.3E-4 (7.2E-5)
Coefficient of linear thermal expansion, transverse	ISO 11359-2	cm/cm/°C (in/in/°F)	1.6E-4 (8.9E-5)

Filament specifications

Diameter	Nominal	Minimum	Maximum	Tolerance
1.75 mm	1.75 mm (0.0689 in)	1.72 mm (0.0677 in)	1.78 mm (0.0701 in)	±0.03 mm (±0.0012 in)
2.85 mm	2.85 mm (0.1122 in)	2.79 mm (0.1098 in)	2.91 mm (0.1146 in)	±0.06 mm (±0.0024 in)

Recommended print settings

Nozzle temperature	220–240°C
Bed temperature	25–85°C
Enclosure	No enclosure is needed
Part cooling fan	0–40% (off for the first layer)
Extruder	Preferably use a direct drive extruder
Drying	Dry an opened spool at 50°C for 4–6 hours
Storage	Keep filament dry: store it sealed, and dry it again only after the spool has been exposed to air
Bed adhesion	Use a glue stick or hairspray as a release agent, or WELD3D. COEXFlex bonds very strongly to glass and smooth PEI, so a release agent protects both the print and the plate
Stringing	Print multiple parts one at a time (sequentially) to minimize stringing. Use maximum travel speed to minimize stringing

Advantages

Resilient, Flexible, Heat Resistant, Chemical Resistant, Strong, Durable. Combines the flexibility of rubber with the strength and processability of thermoplastics.

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