ABS-ESD7

ABS-ESD7 is ABS with carbon blended in so it dissipates static instead of holding it. It is the grade we print for electronics fixtures, conveyor parts, enclosures, and packaging, anywhere a static discharge could damage a component or attract dust.

10^4–10^9 ©
Surface resistance in the ESD-safe range

1.07
Specific gravity at 23 °C (ASTM D792)

101 °C
Heat deflection at 264 psi (ASTM D648)

About this material

ABS-ESD7 is an electrostatic dissipative ABS. Carbon is blended into the plastic so charge bleeds away gradually rather than building up and releasing all at once, which protects sensitive electronics. Because it does not hold a charge, it also does not attract dust or powder. Underneath the ESD behavior it keeps the toughness and heat stability of ABS, with heat deflection near 101 °C.

ESD behavior

Tested per ANSI/ESD S20.20, S11.11, and STM11.12, ABS-ESD7 stays in the static-dissipative range of 10^4 to 10^9 ohms across most geometries and orientations, with some variability in thin-walled cylinders. If a part carries a formal ESD requirement, we plan wall thickness and orientation around it.

Typical applications

Electronics assembly jigs and fixtures, conveyor and line-handling parts, enclosures and housings for electronic devices, and static-safe trays and packaging for sensitive components.

Physical properties

PROPERTY	TYPICAL VALUE	TEST METHOD
Specific gravity	1.07 (at 23 °C)	ASTM D792
Volume resistance	10^4–10^9 ©m	ASTM D257
HDT at 66 psi	104.6 °C (220.2 °F)	ASTM D648 B
HDT at 264 psi	101.4 °C (214.6 °F)	ASTM D648 B
Glass transition (Tg)	105.5 °C (221.8 °F)	ASTM D7426
Thermal conductivity (30 °C)	0.314 W/m·K	ASTM E1952

Tensile properties (ASTM D638)

PROPERTY	F900 XZ	F900 ZX	F370 XZ	F370 ZX
Yield strength [MPa]	35.4	No yield	33.3	No yield
Elongation at yield [%]	2.1	—	2.1	—
Strength at break [MPa]	33.9	27.0	31.8	23.2
Elongation at break [%]	3.4	1.59	2.4	1.8
Tensile modulus [GPa]	2.69	2.28	2.12	1.73

XZ (on-edge) runs the layers along the load and prints stronger. ZX (upright) stacks the layers across the load and often shows no distinct yield. Typical values at 0.25 mm (0.010 in.) layer height.

Flexural, compression, and impact (F900)

PROPERTY	XZ ORIENTATION	ZX ORIENTATION
Flexural strength at break [MPa]	No break	44.3
Flexural strength at 5% strain [MPa]	67.5	—
Flexural modulus [GPa]	2.41	2.04
Compressive yield strength [MPa]	95.3	202
Izod impact, notched [J/m]	36.2	20.5
Izod impact, unnotched [J/m]	198	85.4

Flexural per ASTM D790, compression per ASTM D695, Izod impact per ASTM D256. Stratasys also publishes a full set of F370 mechanical values.

Source and notes

Values are drawn from the Stratasys ABS-ESD7 material data sheet, document MDS_FDM_ABSESD7_0222a (OEM source). Stratasys lists these as typical values for reference and comparison, not for design specifications or quality control. ESD performance varies with geometry, orientation, and finishing.

Full page: https://www.evologymfg.com/manufacturing-capabilities/fdm-fused-deposition-modeling/abs-esd7