

PolyMaker

<http://www.polymaker.com/>

PolyFlex™

Manufacturers Recommended Settings		Personal preferred Settings
Nozzle temperature	220 - 235 °C	230°C
Bed Temperature	Not required	40°C
Speed (mm/s)	30-90 mm/s	50 mm/s
Cooling Fan Speed	%	20 %
Max Flow Rate	mm ³ /s at °C	7 mm ³ /s at 230 °C
Retraction	mm @ mm/s	2mm @45mm/s
Other specifications		
Density	1.17 - 1.24 g/cm ³	
Diameter & Tolerance	2.85 ± 0.05mm	2.81 – 2.9
Shore Hardness (A)	~ 95	Glass Transition Temp ?°C
Bed Adhesive	Blue Tape, Kapton Tape, BuildTak.	Hair spray

1cm³ test piece, 10.20 x 10.15 x 9.90 (mm) (XYZ), weight 1.12g. Density = 1.09g/cm³

PolyMakers's PolyFlex™ is described as a flexible elastic material, no detail of its chemical makeup is available.

Temperature: Prints well between 235 -210°C, although stringing is noticeable, Bridging and stringing was best at 230°C.

Speed: 45-50mm/s is ideal but will print at quicker speeds, I tested up to 105mm/s but I noticed that the bonding between skins deteriorated above 65mm/s.

Volumetric Flow: 7mm³/s at 230°C. good bonding between layers, began to fail at 8mm³/s.

Preferred settings: 0.4mm Nozzle, 230°C, Bed at 40°C with hairspray, speed 50mm/s and fans at 20% I use a set of standard sliced files that I use with all filaments to allow me to compare them against each other.

Ultimaker Robot: Using 200um layers (0.2mm) produced a well-defined print, good definition to the ear-cups and antenna, as well as the overhangs and bridging, a little stringing to be seen.

Tree Frog: Again printed at 200um layers, a nice print good definition all round, stringing noticeable around travel points so a little post print clean up required to remove these.

3DBenchy: A decent print produced at 200um layers, slight bowing to the bridging of the front window and fine stringing visible but acceptable and would clean up quickly.

Aztec Chief: A well-defined model built at 100um, good definition all-round with only a little stringing, slightly lost definition with the finishing on the very top feather, but acceptable.

Conclusion: As with all flexible filaments the flexibility depends on the number of skins and the percentage and structure of the infill, I would class this as not as 'soft' as filaments such as 'Ninjabflex', and although described as elastic I it is not as elastic as 'Ninjabflex'. But it prints well with a single wall thickness, if printing flexible hinges this would be a filament to try them with as by increasing the thickness will affect the flexibility and strength, *Do store correctly in a sealed bag with a desiccant pack when not in use as PolyFlex™ tends to slowly absorb atmospheric moisture.*

Colours available: Only four colours available, Black, White, Orange & Yellow.

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