

# POLYURETHANE (PU) MATERIAL RANGE. MATERIAL PROPERTIES (for comparative purposes only).

RIGID RESINS



| ARRK Resin      | Simulates                | Tensile Strength (Mpa) | Elongation to Break | Flexural Strength (Mpa) | Flexural Modulus (Mpa) | Shore Hardness | Impact Strength | Heat Deflection Temp' (Tg) | Glass Transition Temp' (Tg) | Resin Colour |
|-----------------|--------------------------|------------------------|---------------------|-------------------------|------------------------|----------------|-----------------|----------------------------|-----------------------------|--------------|
| ABS Like PU     | ABS                      | 70                     | 15%                 | 105                     | 2500                   | 85D            | 65              | 90°C                       | 100°C                       | Opaque Clear |
| HT-ABS Like PU  | High Temp' ABS           | 60                     | 11%                 | 80                      | 2300                   | 80D            | >60             | ‡ 110°C                    | ‡ 140°C                     | Black        |
| UHT-ABS Like PU | Ultra High Temp          | 61                     | 13%                 | 80                      | 1850                   | 80D            | 41              | ‡ 138°C                    | ‡ 220°C                     | Amber Yellow |
| TF-PP Like PU   | Talc Filler Poly Prop'   | 40                     | 25%                 | 80                      | 1200                   | 76D            | >50             | 78°C                       | 90°C                        | Opaque Clear |
| PP Like PU      | High Impact Ploy Prop'   | 25                     | 100-120%            | 30                      | 500/450                | 65D            |                 |                            | 95°C                        | Light Brown  |
| GFN Like PU     | Glass Filled Nylon       | 85                     | 3%                  | 150                     | 4500                   | 85D            | 30              | 92°C                       | 95°C                        | Off - White  |
| FR Like PU      | Fire Retardant (UL94-V0) | 55                     | 4%                  | 133                     | 3700                   | 86D            | 26              | 90°C                       | 100°C                       | Off - White  |
| CLEAR PU        | Acrylic / Polycarbonate  | 66                     | 8%                  | 110                     | 2100                   | 85D            | 48              | ‡ 85°C                     | ‡ 95°C                      | Clear        |

‡ Temperature Resistance After Heat Treatment

Last Updated: Jan 2019

| Linear Dimension (mm)   | Tolerance:                   |
|---|------------------------------|
| Up to 70mm  | +/- 0.35mm                   |
| 70mm – 150mm  | +/- 0.50% (0.50mm per 100mm) |
| 150mm – 400mm   | +/- 0.40% (0.40mm per 100mm) |
| Above 400mm   | +/- 0.30% (0.30mm per 100mm) |
| Wall Thickness (mm)   | Tolerance:                   |
| 0.8mm – 1.5mm   | +/- 0.3mm                    |
| Above 1.5mm   | +/- 0.5mm                    |
| Typical Tool Yield (Subject to geometry)                                      |                              |
| ABS-HT, TF-PP, HI-PP  | 25 off                       |
| ABS, HT (130)   | 20-25 off                    |
| GFN, Clear, FR  | 15 off                       |
| UHT   | 10 off                       |
| Please Note: Particularly complex / difficult geometries may affect tool life |                              |