

# 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 (KJ/m <sup>2</sup> ) | Heat Deflection Temp' (Tg) | Glass Transition Temp' (Tg) | Resin Colour    |
|----------------|--------------------------|------------------------|---------------------|-------------------------|------------------------|----------------|--------------------------------------|----------------------------|-----------------------------|-----------------|
| ABS Like PU    | ABS                      | 70                     | 9%                  | 110                     | 2500                   | 85D            | 50                                   | 70°C                       | 100°C                       | Opaque Clear    |
| HT-ABS Like PU | High Temp' ABS           | 60                     | 11%                 | 80                      | 2300                   | 80D            | >60                                  | ‡ 110°C                    | ‡ 120°C                     | Black           |
| HT-170         |                          | 47                     | 43%                 | 48                      | 1320                   | 80D            | 15                                   | ‡ 170°C                    | ‡ 190°C                     | Yellowish White |
| TF-PP Like PU  | Talc Filler Polyprop'    | 40                     | 25%                 | 80                      | 1200                   | 76D            | >50                                  | 78°C                       | 90°C                        | Opaque Clear    |
| PP Like PU     | High Impact Polyprop'    | 25                     | 100%                | 30                      | 500                    | 70D            |                                      | 55°C                       | 95°C                        | Dark Beige      |
| 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%                  | 93                      | 3700                   | 83D            | 60                                   | 90°C                       | 100°C                       | Solid White     |
| CLEAR Like PU  | Acrylic / Polycarbonate  | 66                     | 8%                  | 110                     | 2400                   | 85D            | 48                                   | 65°C(#85°C)                | ‡ 95°C                      | Clear           |
| CF Like PU     | Carbon Fibre             | 104                    | 4%                  | 150                     | 6000                   | 90D            |                                      | 90°C                       | 105°C                       | Black           |

‡ Temperature Resistance After Heat Treatment  
Not all materials offered across all sites

## Typical PU Tolerances



| 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 (Note: Minimum wall thickness 0.8mm) |
| Above 1.5mm                                                                                                                        | +/- 0.5mm                                      |
|                                                                                                                                    |                                                |
| Typical Tool Yield (Subject to geometry)                                                                                           |                                                |
| HT-ABS, TF-PP, PP                                                                                                                  | 25 off                                         |
| ABS                                                                                                                                | 20 off                                         |
| GFN, Clear, FR                                                                                                                     | 15 off                                         |
| Carbon Fibre, HT-170                                                                                                               | 10 off                                         |
| Please Note: Particularly complex / difficult geometries may affect tool life<br>N.B. Not all materials available across all sites |                                                |