



# Product Datasheet

## Ryton R4 PPS

40% Glass Fiber Reinforced, PPS, Extruded Shapes

Ryton R4 PPS is a 40% glass fiber reinforced PPS that offers high stiffness and excellent chemical inertness to a wide range of chemicals. It is one of the most cost effective high performance polymers. It absorbs near zero water and offers excellent dimensional stability during and after machining and is well suited for highly stressed parts and machine components. Ryton also has excellent dielectric properties. Typical applications are:

- Down hole O&G components
- Compressor parts
- High temperature insulators

**Material Notes: Ryton R4 has less ductility than many other polymers so all corners should be radiused**

Physical Properties	Metric	English	Methods
Specific Gravity	1.66 g/cc	0.06 lb/in <sup>3</sup>	ASTM D792
Water Absorption	0.02%	0.02 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.1 %	0.1 %	Immersion; ASTM D570(2)

### Mechanical Properties\*

Hardness, Rockwell M	100	100	ASTM D785
Hardness, Rockwell R	120	120	ASTM D785
Hardness, Shore D	90	90	ASTM D2240
Tensile Strength, Ultimate	83 MPa	12,000 psi	ASTM D638
Elongation at Break	5%	5 %	ASTM D638
Tensile Modulus	6900 MPa	1,000,000 psi	ASTM D638
Flexural Modulus	6900 MPa	1,000,000 psi	ASTM D790
Flexural Yield Strength	124 MPa	18,000 psi	ASTM D790
Compressive Strength	172 MPa	25,000 psi	10% Def.; ASTM D695
Compressive Modulus	5520 MPa	800,000 psi	ASTM D695
Izod Impact (notched)	60J/M	1.2	ASTM D256 Type A

### Thermal Properties

Melt Point	282°C	540°F	ASTMD3418
Heat Deflection Temp (264 psi)	265°C	420°F	ASTM D638
Coefficient of Linear Thermal Exp. in/in/°F	2.0x10 <sup>-5</sup> C <sup>-1</sup>	1.2x10 <sup>-5</sup> F <sup>-1</sup>	ASTM E831

\*The mechanical properties of extruded shapes may differ from the values published by resin producers. Published resin data is always generated off injection molded test specimens run under near perfect conditions. Drake's extruded shape values are generated using specimens machined from actual shapes and may reflect surface imperfections from machining, enhanced crystallinity resulting from processing and fiber alignment inherent in all reinforced plastic shapes, regardless of process. For additional information on the effects of fiber alignment see Drake Fiber Orientation Diagram available on the Resource page of our website.