

A New Specialty PPS for Fiberoptic Connectors

Fortron® PPS 8670A61

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Targets

Replacing:

Ceramics

Zirconia

Thermosets

Other ETPs

Higher Density

Multi-Fiber

Small Form Factor

} Connectors

Features/Benefits

- High Melt Flow
- Faster Crystallization
- Uniform Shrink, Coefficient of Linear Thermal Expansion (CTE)
- Lower Molded-in Stress
- Low Moisture Uptake

Features/Benefits

High Melt Flow

→ **fill more intricate parts**

→ **new denser designs features to 0.1 mm**

→ **reduce runner volume**

→ **less scrap faster molding cycles**

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Faster Crystallization

→ **faster molding cycles**
fewer cavities
fewer tools
fewer machines

→ **reduced costs**

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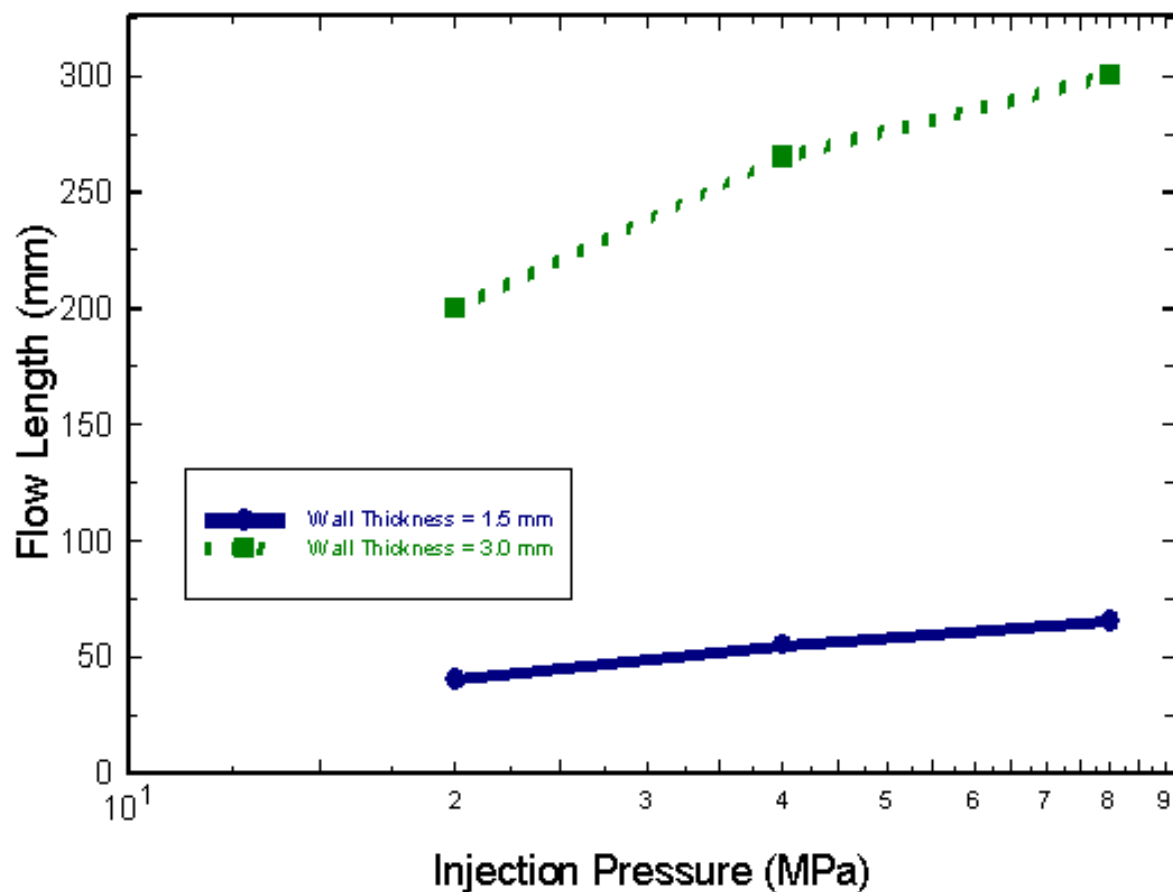
Uniform Shrink, CTE
Lower Molded-in Stress
Low Moisture Uptake

→ **Improved dimensional stability**

→ **better “optical” performance**

Mold Flow

Flow Length Versus Injection Pressure
Two Wall Thicknesses for Fortron PPS 8670A61



Raw Material Savings and Cycle Time Benefits

Reduced scrap → Average 55% (smaller runners)

Faster molding → 20% versus other PPS

35% versus out-of-kind

All-up part cost → 50% plus savings

Better Dimensional Stability

<u>Material</u>		<u>Moisture Gain %</u>
Fortron PPS 8670A61		0.015
Other Fortron “average”		0.020
Out-of-kind “average”	thermoplastic	0.330
	thermoset	0.375

- Lower Uptake = better stability 

Better Dimensional Stability

<u>Material</u>		<u>Mold Shrink (mils/in)</u> <u>Flow/Transverse</u>
Fortron PPS 8670A61		1.5 / 1.5
Other Fortron PPS “average”		3.9 / 4.0
Out-of-kind “average”	thermoplastic	5.0 / 6.0
	thermoset	1.0 / 3.0

- Less anisotropy → better stability as molded

Better Dimensional Stability

<u>Material</u>		Coefficient of Linear Thermal Expansion (mils/°C x 10⁻⁵) <u>Flow/Transverse</u>
Fortron PPS 8670A61		1.6 / 1.6
Other Fortron PPS “average”		1.7 / 2.0
Out-of-kind “average”	thermoplastic	1.4 / 2.3
	thermoset	1.1 / 2.0

- Less anisotropy → better stability in use

Other Benefits

- Versus “conventional” PPS
 - lower flash tendency
 - easier deflashing

- Harder surface
 - better polishing
 - improved surface and optics

- Improved part strength
 - better “weld lines”
 - greater integrity in thinner sections

Key Short Term Properties FO Connector Grade (Fortron PPS 8670A61)

<u>Test</u>	<u>Method</u>	<u>Units</u>	<u>Value</u>
Water Absorption	ASTM D570	%	0.015
Tensile Strength	ISO 527	MPa	65
Tensile Weld Line Strength	ISO 527	MPa	34
Flex Strength	ISO 178	MPa	100
Compressive Strength	ISO 604	MPa	140
Rockwell Hardness	ASTM D785	M Scale	102
Coefficient of Thermal Expansion:			
Flow	ISO11359-2	$1 \times 10^{-5} / ^\circ\text{C}$	1.6
Transverse	ISO11359-2	$1 \times 10^{-5} / ^\circ\text{C}$	1.6

Check www.ticona.com for last datasheet

Keys to Molding Set-Up FO Connector Grade

- Dry minimum 3 hours, 140°C - dehumidifying hopper drier
- Melt temperature range 290°-315°C
- Mold temperature range 140°-160°C
- Moderate screw speed, back pressure, cushion
- Medium-high injection speed (shear sensitivity)
- Small orifice or positive shut-off nozzle

World-Class Engineering Polymers

- Celanex® thermoplastic polyester (PBT)
- Celcon® and Hostaform® acetal copolymer (POM)
- Celstran® and Compel® long fiber reinforced thermoplastics (LFRT)
- Fortron® polyphenylene sulfide (PPS)
- GUR® ultra-high molecular weight polyethylene (UHMW-PE)
- Impet® thermoplastic polyester (PET)
- Riteflex® thermoplastic polyester elastomer (TPC-ET)
- Vandar® thermoplastic polyester alloy (PBT)
- Vectra® liquid crystal polymer (LCP)

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* 0.14 €/min + local landline rates

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