

# FORTRON® 4332L6

## Polyphenylene sulfide

Fortron 4332L6 is a glass fiber/mineral filled injection molding grade, which is intended for applications requiring improved tensile and flexural properties, when compared to other GF/MIN reinforced PPS grades. The recommended processing parameters are similar to the standard grades.

### Product information

|                      |                   |           |
|----------------------|-------------------|-----------|
| Resin Identification | PPS-(GF+MD)6<br>5 | ISO 1043  |
| Part Marking Code    | >PPS-(GF+MD)65<   | ISO 11469 |

### Rheological properties

|                                    |             |                 |
|------------------------------------|-------------|-----------------|
| Moulding shrinkage range, parallel | 0.2 - 0.6 % | ISO 294-4, 2577 |
| Moulding shrinkage range, normal   | 0.3 - 0.7 % | ISO 294-4, 2577 |

### Typical mechanical properties

|                                       |                       |              |
|---------------------------------------|-----------------------|--------------|
| Tensile modulus                       | 22500 MPa             | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min      | 160 MPa               | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min      | 1.2 %                 | ISO 527-1/-2 |
| Flexural modulus                      | 21000 MPa             | ISO 178      |
| Flexural strength                     | 260 MPa               | ISO 178      |
| Charpy impact strength, 23°C          | 30 kJ/m <sup>2</sup>  | ISO 179/1eU  |
| Charpy notched impact strength, 23°C  | 6.5 kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy notched impact strength, -30°C | 6.1 kJ/m <sup>2</sup> | ISO 179/1eA  |
| Poisson's ratio                       | 0.309                 |              |

### Thermal properties

|                                                          |                                          |                |
|----------------------------------------------------------|------------------------------------------|----------------|
| Melting temperature, 10°C/min                            | 280 °C                                   | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min                   | 90 °C                                    | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa            | 270 °C                                   | ISO 75-1/-2    |
| Temperature of deflection under load, 8 MPa              | 220 °C                                   | ISO 75-1/-2    |
| Coefficient of linear thermal expansion (CLTE), parallel | 12 E-6/K                                 | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal   | 45 E-6/K                                 | ISO 11359-1/-2 |
| Thermal conductivity, flow                               | 0.63 <sup>[OT]</sup> W/(m K)             | ISO 22007-2    |
| Thermal conductivity, crossflow                          | 0.58 <sup>[OT]</sup> W/(m K)             | ISO 22007-2    |
| Thermal conductivity, through plane                      | 0.6 <sup>[OT]</sup> W/(m K)              | ISO 22007-2    |
| Effective thermal diffusivity, flow                      | 3.6E-7 <sup>[OT]</sup> m <sup>2</sup> /s | ISO 22007-4    |
| Effective thermal diffusivity, crossflow                 | 3.3E-7 <sup>[OT]</sup> m <sup>2</sup> /s | ISO 22007-4    |
| Effective thermal diffusivity, through plane             | 3.4E-7 <sup>[OT]</sup> m <sup>2</sup> /s | ISO 22007-4    |
| Specific heat capacity of melt                           | 890 <sup>[OT]</sup> J/(kg K)             | ISO 22007-4    |

[OT]: One time tested

### Flammability

|                                      |           |                      |
|--------------------------------------|-----------|----------------------|
| Burning Behav. at 1.5mm nom. thickn. | V-0 class | IEC 60695-11-10      |
| FMVSS Class                          | SE        | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm         | mm/min    | ISO 3795 (FMVSS 302) |

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### Physical/Other properties

|                       |                        |                |
|-----------------------|------------------------|----------------|
| Water absorption, 2mm | 0.02 %                 | Sim. to ISO 62 |
| Density               | 1950 kg/m <sup>3</sup> | ISO 1183       |

### Injection

|                                 |               |
|---------------------------------|---------------|
| Drying Recommended              | yes           |
| Drying Temperature              | 130 °C        |
| Drying Time, Dehumidified Dryer | 2 - 4 h       |
| Processing Moisture Content     | ≤0.02 %       |
| Melt Temperature Optimum        | 330 °C        |
| Min. melt temperature           | 310 °C        |
| Max. melt temperature           | 340 °C        |
| Screw tangential speed          | 0.2 - 0.3 m/s |
| Mold Temperature Optimum        | 150 °C        |
| Min. mould temperature          | 140 °C        |
| Max. mould temperature          | 160 °C        |
| Hold pressure range             | 30 - 70 MPa   |
| Back pressure                   | 3 MPa         |
| Ejection temperature            | 225 °C        |

### Characteristics

|                         |                                            |
|-------------------------|--------------------------------------------|
| Processing              | Injection Moulding                         |
| Special characteristics | Flame retardant, High Flow, Improved creep |

### Additional information

Injection molding

### Preprocessing

Predrying in a dehumidified air dryer at 130 - 140 degC/3-4 hours is recommended.

### Processing

On injection molding machines with 15-25 D long three-section screws, as are usual in the trade, the FORTRON is processable. A shut-off nozzle is preferred to a free-flow nozzle.

Melt temperature 320-340 degC  
Mold wall temperature at least 140 degC

A medium injection rate is normally preferred. All mold cavities must be effectively vented.

### Postprocessing

Tool temperature of at least 135 degC is recommended for parts to achieve maximum crystallizable potential.

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## Automotive

### OEM

BMW

General Motors

General Motors

### STANDARD

GS93016

GMW17519P-PPS-(GF45-MD20)

GMW17519P-PPS-(GF45-MD20)

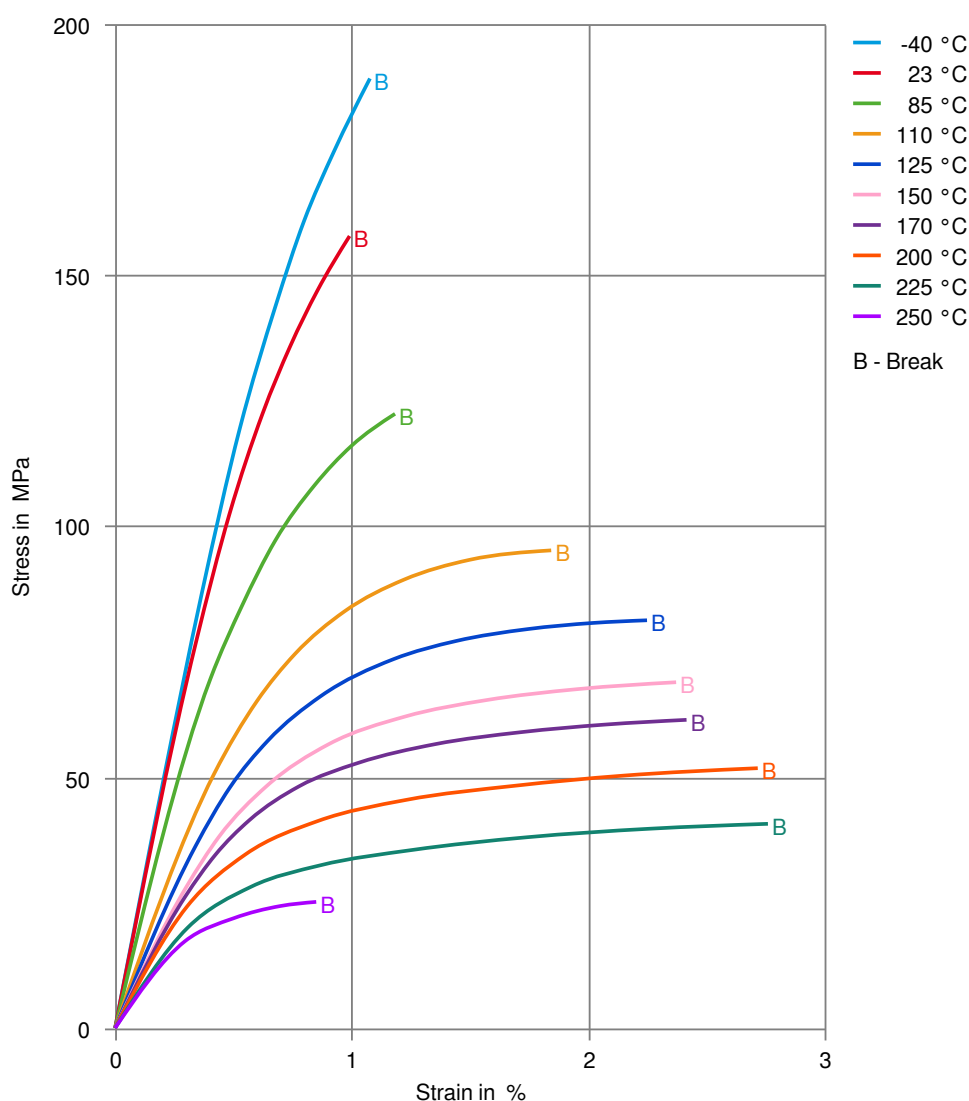
### ADDITIONAL INFORMATION

SD3002 Black

Natural

Black

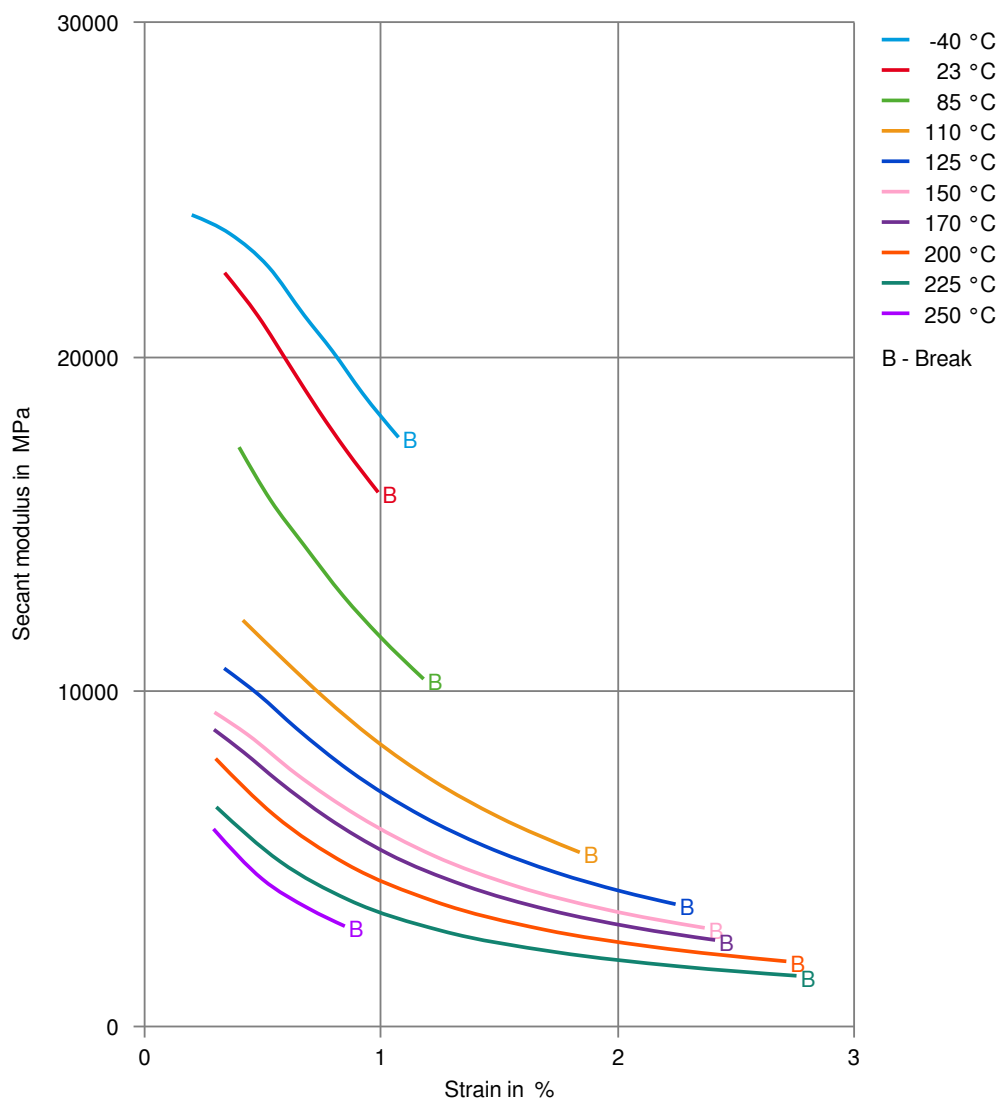
## Stress-strain



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Secant modulus-strain



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