



# Processing Conditions

## High Density Polyethylene (HDPE) — RTP 700 Series Long Fiber Compounds

### Typical Injection Molding Conditions

	English	SI Metric
<b>Temperatures</b>		
Rear zone	350 - 390 °F	177 - 199 °C
Center zone	370 - 420 °F	188 - 216 °C
Front zone	390 - 440 °F	199 - 227 °C
Melt	380 - 450 °F	193 - 232 °C
Mold	70 - 150 °F	21 - 66 °C

<b>Pressures</b>		
Injection	10000 - 18000 psi	69 - 124 MPa
Hold	5000 - 10000 psi	34 - 69 MPa
Back	25 - 50 psi	0.17 - 0.34 MPa

<b>Speeds</b>		
Fill	0.5 - 1 in/sec	13 - 25 mm/sec
Screw	30 - 70 rpm	30 - 70 rpm

<b>Drying</b>		
Time & Temperature	2 Hrs @ 175 °F	2 Hrs @ 79 °C
Dew Point	-20 °F	-29 °C
Moisture Content	0.20 %	0.20 %

### Notes

- To maximize fiber length, the following injection barrel, screw, and tip designs should be followed: 1.) L/D ratio 16/1 to 22/1. 2.) Compression ratio 2:1. 3.) Flight depth 0.20 in. (5.08 mm) minimum, in feed section. 4.) Screw diameter 0.65 to 0.80 in. (16.51 to 20.32 mm) minimum. 5.) compression section length 12 to 13 diameters. 6.) Check ring valve assembly - free flow type no restrictions. 7.) Nozzle orifice 0.25 in (6.35 mm) diameter.
- Feed throat from hopper to machine must have sufficient opening to prevent bridging of long pellet composition.
- Uses a reverse barrel profile to 'presoak' or 'soften fibers.'
- This information is intended to be used only as a guideline for designers and processors of modified thermoplastics for injection molding. Because injection mold design and processing is complex, a set solution will not solve all problems. Observation on a "trial and error" basis may be required to achieve desired results.
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