

# processing guidelines

## Typical Molding Conditions for Vydyne® Impact Modified Nylons

*Optimal processing conditions depend on your machine size, screw design, material residence time, and other features of your operation. The settings and guidelines below will help you achieve optimal processing and excellent part quality.*



Melt Temperature, °C 275 to 305

Suggested Machine Conditions	
Cylinder Settings, °C	275 to 310
Mold Surface Temperature, °C	15 to 95
Injection Pressure, MPa	55 to 140
Holding Pressure, MPa	55 to 140
Injection Time, sec	<1 to 2.5
Screw Back Pressure, MPa	0.2 to 1.0
Screw Speed, rpm	50 to 150
Cushion, mm	3.0 to 6.4
Clamp Pressure, tons/cm <sup>2</sup>	0.3 to 0.7

### Suggested Guidelines for Molding

1. Your Vydyne nylon resins arrive packaged in moisture-protected containers. If you do not open the original package prior to use, then drying is not necessary. However, if drying is necessary, we recommend that you use a dehumidified air-type dryer (desiccant bed) with a maximum air temperature of 70°C for 1 to 3 hours.

2. The recommended melt temperatures for Vydyne impact-modified resins are 280 to 305°C. Measure the stock in an air shot with a hand-held pyrometer. In addition to the barrel heater bands, screw back pressure and rotation speed add heat to the melt.

3. Maintain mold surface temperatures in a range of 15 to 95°C. We recommend temperatures on the high

end, as the molding cycle allows, to aid in mold filling and to improve the appearance of the molded part.

4. Injection fill rates should be fast. Minimize the use of back pressure 0.2 to 1.0 MPa to yield a consistent melt and/or adequate mixing of color concentrates. Set the screw rotation speed at the minimum required to maintain the molding cycle (50 to 150 rpm).

5. Hold pressure should be set high enough to prevent screw bounce. Hold time should be set until the gate freezes.

6. Maintain your machine's shot-weight-to-barrel-size ratio at 40% to 80% of rated (polystyrene) capacity. A lower shot-to-barrel ratio

results in excess residence time and polymer degradation, which can permanently embrittle the molded part. At a shot-to-barrel ratio above the recommended ratio, molding machinery is often unable to deliver a uniform melt or the desirable fast mold fill.

7. Regrind must be dry when molded. The preferred procedure is to grind and reuse immediately after molding. Regrind-to-virgin ratios of 25% or less have shown no significant property loss when properly molded. However, to ensure adequate performance of your molded part, determine acceptable levels for each application through actual part testing.

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