

POKETONE Hot Runner Processing Guide

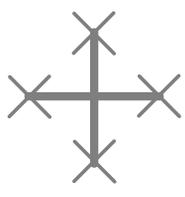
Image: Husky

Hot runners have been used successfully around the world for the injection molding of POKETONE. Like other heat-sensitive resins, POKETONE resins in hot runners need more care than basic molds. Here are tips reducing troubles during processing.

Basics

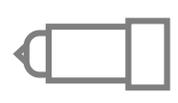
- Use only a well-balanced hot runner manifold system built specifically for the product design.
- Heated runner paths should provide a streamlined flow path to the cavity and be externally heated.
- Use complete systems from one manufacturer rather than different manufacturers.

Manifold



Externally heated systems are best. Internally heated manifolds are not suitable for POKETONE – these systems typically have hot spots and stagnation zones that cause partially solidified material to cling to the cooler manifold walls. All passages should be highly polished circular cross sections with gentle bends to minimize the possibility of stagnation zones.

Nozzle



Nozzle and gate (for both valve gate and hot tip) elements need to be insulated from the mold plates to maintain proper temperature control. Small gate size is not recommended to prevent freeze-off issue at nozzle due to rapid

solidification of POKETONE. All passages within the nozzle should be highly polished and streamlined to minimize stagnation and degradation zones. Each gate should use an individual temperature controller.

Temperature



A typical hot runner temperature profile would range from 230°C (446°F) to 245°C (473°F) given the shear heating during processing. If the temperature at the gate is too low, melt at the gate will be too cold, which will make valve needle difficult to close and open.

[Nozzle tip insulator]

We suggest you install the insulator cap at the nozzle tip. This eliminates blocking your melt passages and prevents freezing off of the POKETONE while awaiting injection inside the hot runner system.



PCS Company

[Mold cooling]

Field trials have indicated that you need to keep the mold temperature around gate over 70°C to minimize hot runner nozzle tip freezing off. Please DO NOT raise up the the hot runner temperature to eliminate blocking the gate. Just raising up the mold temperature can solve the freezing off issues.

Purging



After processing, clean the hot runners by high density polyethylene or polypropylene immediately. POKETONE resin should be purged thoroughly and immediately to prevent risk of contamination like black specks and degradation.

Typical Trouble Shooting

Black Specks

Cause: When you see black or brown specks on POKETONE molded part, most often, they are signs that the material has been degraded because POKETONE resin has been at high temperature for too long.
Remedy: Clean the barrel and hot runner by low melt-flow resin immediately. Set the hot runner temperature between 230°C (446°F) to 245°C (473°F).

Gate freezing off

Cause: Gate freezing off usually happens due to too cold melt, too small gate for material being used, excessive cooling around gate, too much contact between nozzle and mold, or incorrect gate type.
Remedy: Raise mold temperature around gate over 70°C, check machining of nozzle cavity and make sure contact is at a minimum, check machining of gate profile and change if needed.