When designing a mould for a direct gated part that uses a Hot Runner System it is critical to consider effective cooling at the gate and in the Hot Runner System plates.

Inadequate gate cooling can result in poor gate vestige and/or extended cycle times. Part quality issues such as splay or bloom can also result from a poorly designed tool.

Insufficient cooling in the back plate or manifold housing plate can result in excessive heat transfer to the rest of the mould or machine platen, plate distortion or insufficient sealing forces within the Hot Runner System.

**KEY**

- Water In Cooling Circuit
- Water Out Cooling Circuit
- Back Plate
- Manifold Plate
- Manifold

During the initial tool design process it is important to consider the following influential factors when considering gate cooling.

- Gate Insert design and material
- Distance of circuit from gate
- Thermal conductivity of insert
- No part line between gate and circuit
- Controllability
Gate Cooling

Gate Cooling needs to be on a separate circuit to the mould plate.

**KEY**
- Water In Cooling Circuit
- Water Out Cooling Circuit
- Manifold Plate
- Cavity Plate

**Dimples**

Design dimples for maximum material thickness around gate

**Valve Gate Cooling Circuits**

Manifold plate circuit
Back plate circuit
Valve Gate cylinders require cooling on two sides of cylinders

**Successful Tooling Projects**

Proper tool design will result in efficient cycle times, good part quality and efficient transition of new tooling into full production.

Your Mastip Technology engineering team is available for consultation during the tool design process to ensure that your new tooling project becomes a success.