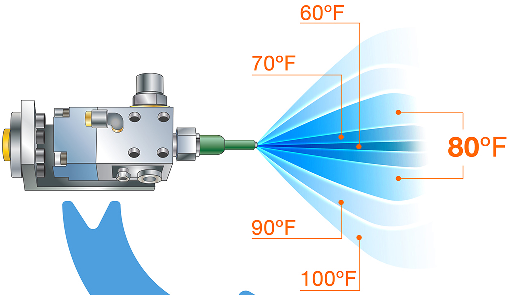
Effects of Temperature on Sealer Applications

Knowing the optimum temperature range
will ensure consistent results in your sealer application process.

WHAT DOES TEMPERATURE AFFECT?

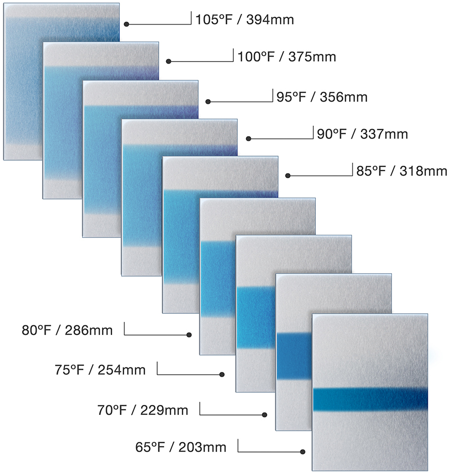

60°F
70°F
80°F
90°F
100°F

VISCOSITY.

Which in turn affects:

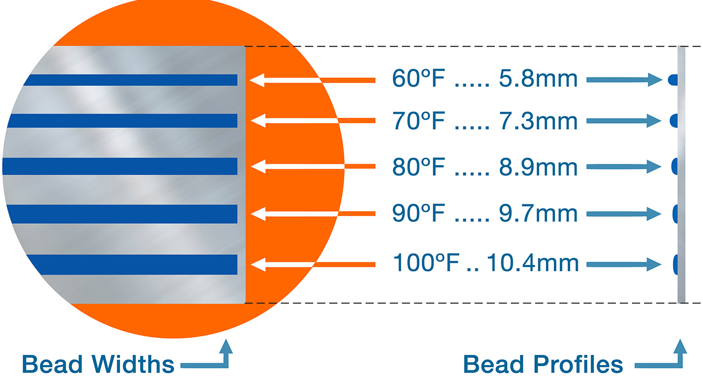
- **Flow**
- **Pressure drop**
- **Volume of material dispensed**
- **Dispense ratio (2K systems)**
- **Spray pattern**
- **Bead profile**

Spray Patterns

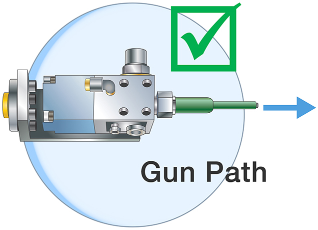


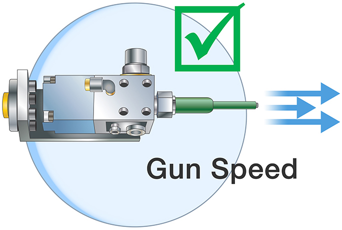
When Is Temperature Control Needed?

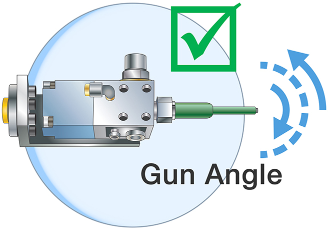
- When dispensing a viscous material sensitive to temperature changes
- When manual, automated or robotic equipment is used
- When repeatable results are desired
- When quality requirements are high– in short, always

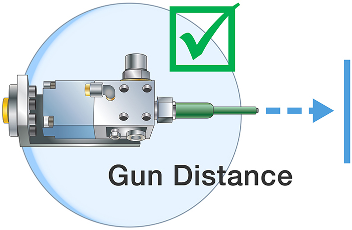

60°F 5.8mm
70°F 7.3mm
80°F 8.9mm
90°F 9.7mm
100°F .. 10.4mm
Bead Widths
Bead Profiles

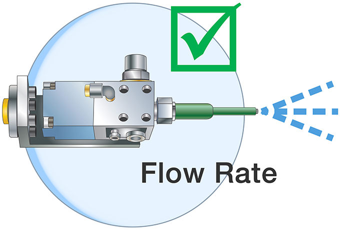
CONSTANTS – TYPICAL PROCESS

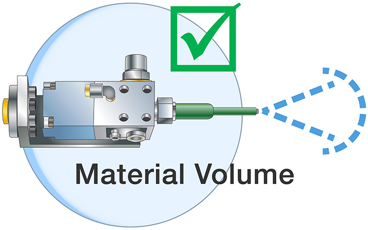


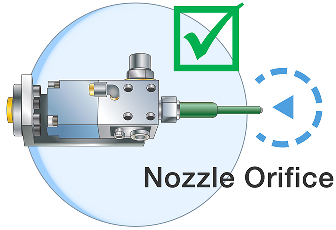


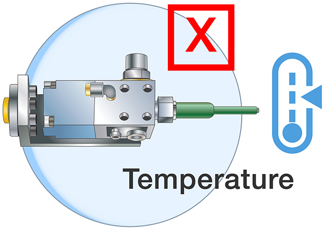



Gun Distance




Material Volume


✓
Nozzle Orifice

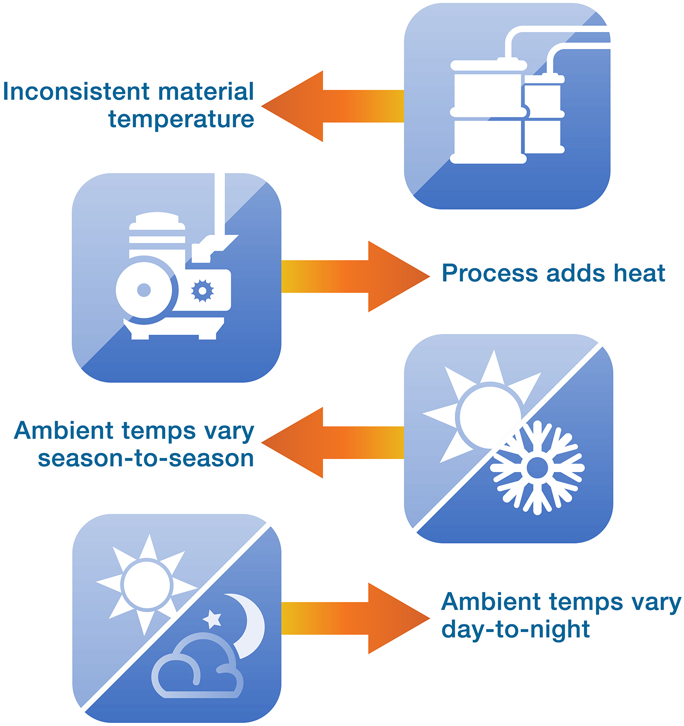

X
Temperature

TEMPERATURE AS A TOOL

- Higher Temperature = Lower Viscosity
- Improves flow-out (surface finish)
- Reduce flash-off/cure times
- Less Solvent = Reduced Emissions

- Lower Temperature = Higher Viscosity
- Reduce flow-out / slumping
- Increase deposition thickness
- Reduce solvent based defects

WHY TEMP FLUCTUATES?



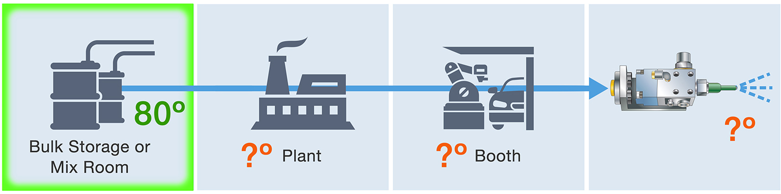
Inconsistent material temperature

Process adds heat

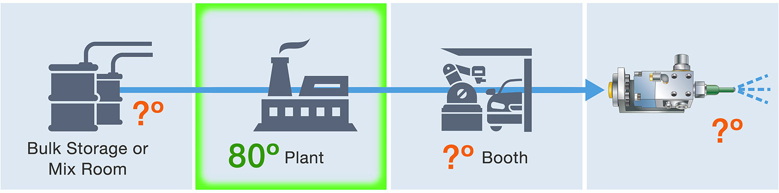
Ambient temps vary season-to-season

Ambient temps vary day-to-night

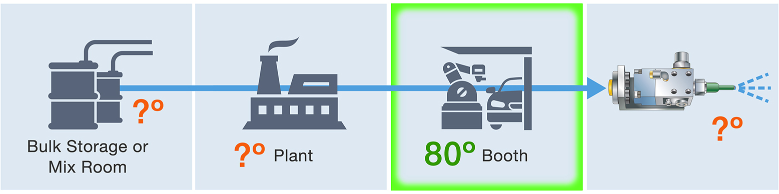
Controlling at the Source


80°
Bulk Storage or Mix Room
?° Plant
?° Booth
?°

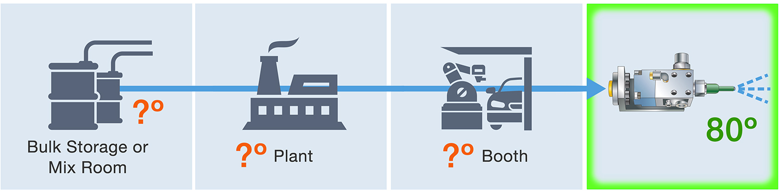
Controlling at the Plant

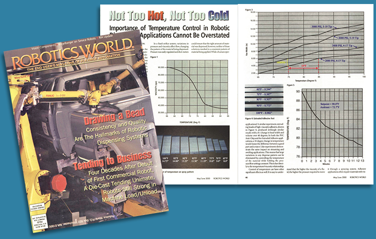

?°
Bulk Storage or Mix Room
80° Plant
?° Booth
?°

Controlling at the Booth


?°
Bulk Storage or Mix Room
?° Plant
80° Booth
?°

Controlling at the Point of Dispense


?°
Bulk Storage or Mix Room
?° Plant
?° Booth
80°



ROBOTICS WORLD

Drawing a Bead
Consistency and Quality Are The Hallmarks of Robotic Dispensing Systems

Tending to Business
Four Decades After Debut of First Commercial Robot, A Die-Cast Tending Unimate Robots Still Strong in Machine Load/Unload

Not Too Hot, Not Too Cold
Importance of Temperature Control in Robotic Applications Cannot Be Overstated

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