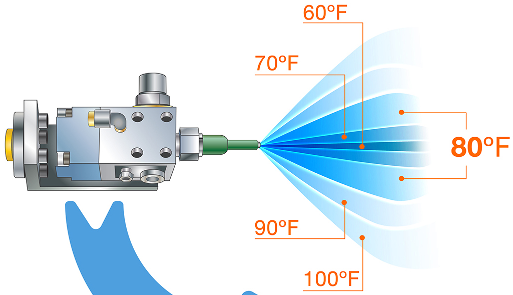
Effects of Temperature on Sealer Applications

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

WHAT DOES TEMPERATURE AFFECT?

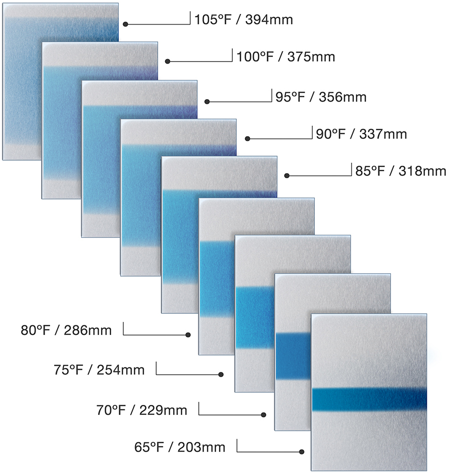

60°F
70°F
80°F
90°F
100°F

VISCOSITY.

Which in turn affects:

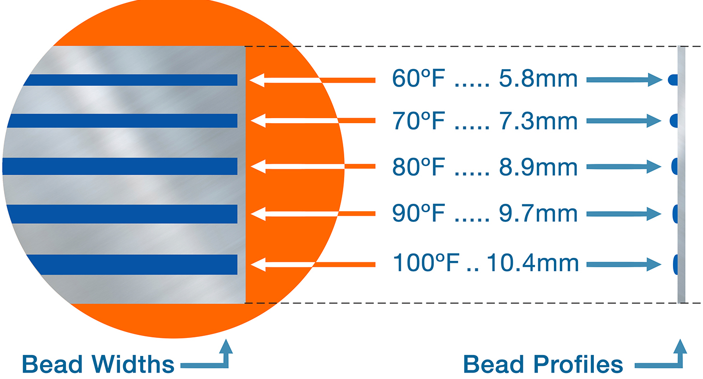
- **Flow**
- **Pressure drop**
- **Volume of material dispensed**
- **Dispense ratio (2K systems)**
- **Spray pattern**
- **Bead profile**

Spray Patterns

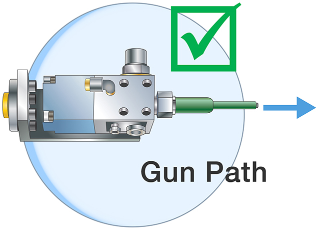

105°F / 394mm
100°F / 375mm
95°F / 356mm
90°F / 337mm
85°F / 318mm
80°F / 286mm
75°F / 254mm
70°F / 229mm
65°F / 203mm

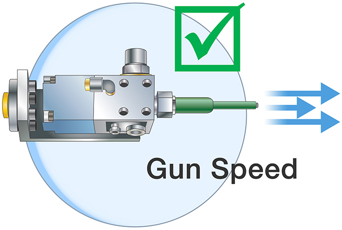
When Is Temperature Control Needed?

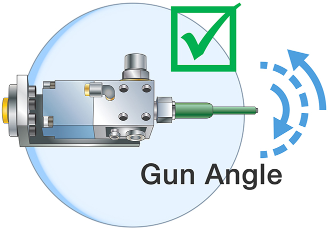
- When dispensing a viscous material sensitive to temperature changes
- When manual, automated or robotic equipment is used
- When repeatable results are desired
- When quality requirements are high– in short, always

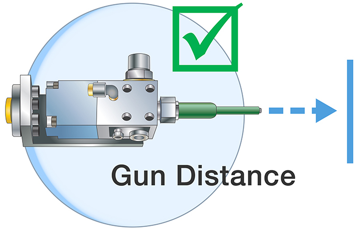

60°F 5.8mm
70°F 7.3mm
80°F 8.9mm
90°F 9.7mm
100°F .. 10.4mm
Bead Widths
Bead Profiles

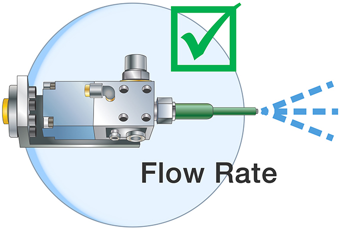
CONSTANTS – TYPICAL PROCESS

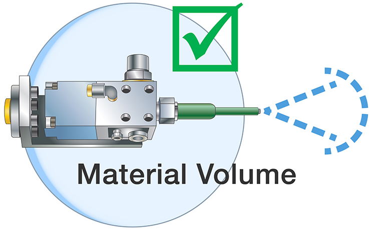


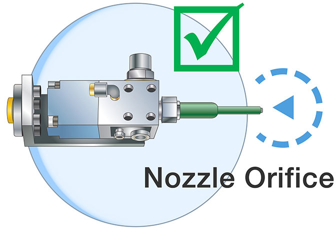


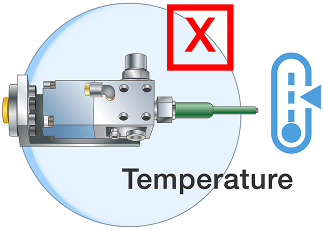



Gun Distance




Material Volume


Nozzle Orifice

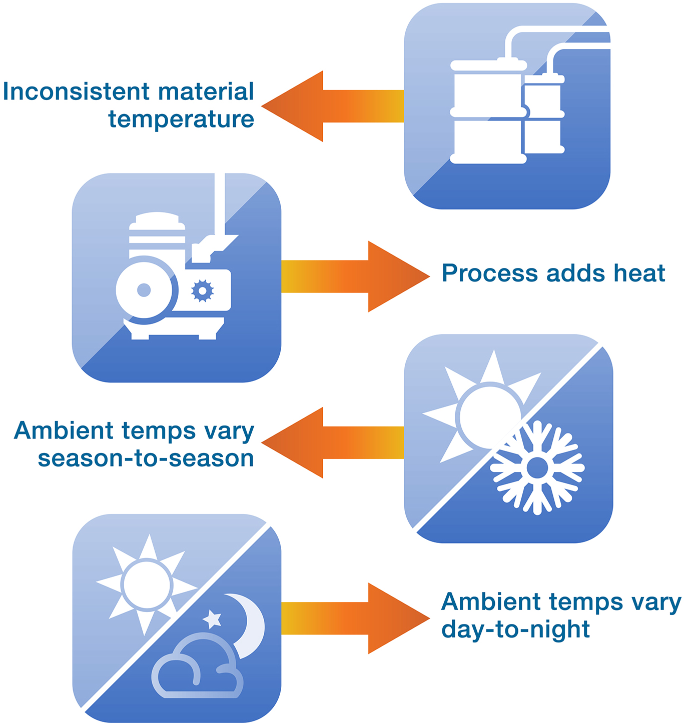

Temperature

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?

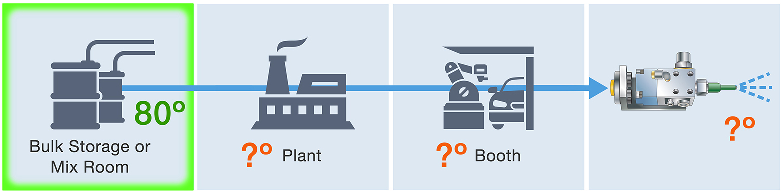

Inconsistent material temperature

Process adds heat

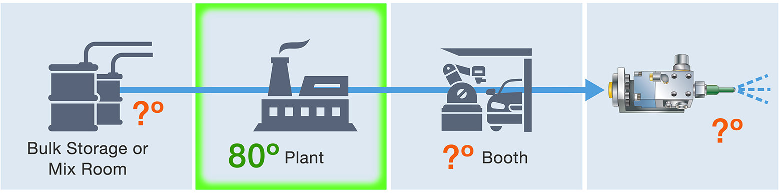
Ambient temps vary season-to-season

Ambient temps vary day-to-night

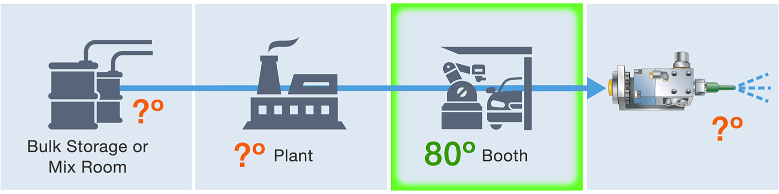
Controlling at the Source


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

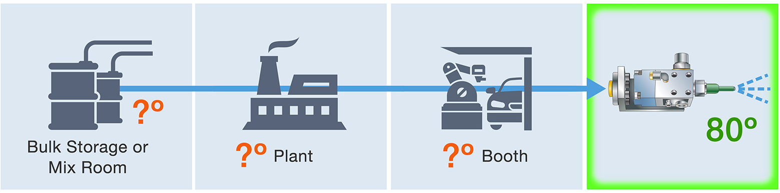
Controlling at the Plant

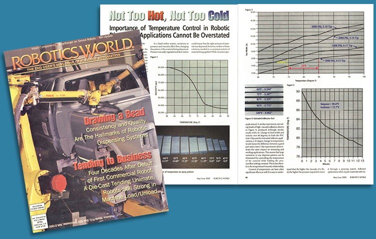

?°
Bulk Storage or Mix Room
80° Plant
?° Booth
?°

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

Free Temperature Control Resources

Learn how implementing temperature control leads to more consistent results in dispensing applications.

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