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Ryton® PPS Processing Comparison

Ryton® PPS R, BR, XE and XK grades

Material Information	R-7-120NA/ BR111	R-4-200NA/ R-4-220NA	R-4-230NA	XE3035/ XE4050/ XE5030	XK2340
Temperature					
Barrel temperature					
Rear	293–304 °C (560–580 °F)	293–304 °C (560–580 °F)	293–304 °C (560–580 °F)	293–304 °C (560–580 °F)	265–282 °C (510–540 °F)
Middle	304–316 °C (580–600 °F)	299–310 °C (570–590 °F)	299–310 °C (570–590 °F)	299–310 °C (570–590 °F)	271–288 °C (520–550 °F)
Front	316–327 °C (600–620 °F)	316–327 °C (600–620 °F)	304–316 °C (580–600 °F)	316–327 °C (600–620 °F)	277–293 °C (530–560 °F)
Nozzle	293–327 °C (580–620 °F)	293–321 °C (580–610 °F)	304–316 °C (580–600 °F)	293–321 °C (580–610 °F)	277–288 °C (530–550 °F)
Melt temperature (air purge)	329–335 °C (625–635 °F)	310–329 °C (610–625 °F)	316–321 °C (600–610 °F)	310–329 °C (610–625 °F)	288–296 °C (550–565 °F)
Thermolator set temp.					
Fixed	141–163 °C (285–325 °F)	141–163 °C (285–325 °F)	141–163 °C (285–325 °F)	141–163 °C (285–325 °F)	93–121 °C (150–300 °F)
Moving	141–163 °C (285–325 °F)	141–163 °C (285–325 °F)	141–163 °C (285–325 °F)	141–163 °C (285–325 °F)	93–121 °C (150–300 °F)
Mold steel temperature					
Fixed	135–149 °C (275–300 °F)	135–149 °C (275–300 °F)	135–149 °C (275–300 °F)	135–149 °C (275–300 °F)	60–135 °C (140–275 °F)
Moving	135–149 °C (275–300 °F)	135–149 °C (275–300 °F)	135–149 °C (275–300 °F)	135–149 °C (275–300 °F)	60–135 °C (140–275 °F)
Drying	135–163 °C (275–325 °F)	135–163 °C (275–325 °F)	135–163 °C (275–325 °F)	80–85 °C (175–185 °F)	80 °F (175 °C)
Pressure					
Peak pressure at cut-off	Part dependent	Part dependent	Part dependent	Part dependent	Part dependent
Boost pressure (1 st stage)	13.8+ bar (200+ psi) > peak pressure at cut-off	13.8+ bar (200+ psi) > peak pressure at cut-off	13.8+ bar (200+ psi) > peak pressure at cut-off	13.8+ bar (200+ psi) > peak pressure at cut-off	13.8+ bar (200+ psi) > peak pressure at cut-off
Pack pressure (2 nd stage)	60–75 % of peak at C.O. or 52 bar (750 psi) min.	60–75 % of peak at C.O. or 52 bar (750 psi) min.	60–75 % of peak at C.O. or 52 bar (750 psi) min.	60–75 % of peak at C.O. or 52 bar (750 psi) min.	60–75 % of peak at C.O. or 52 bar (750 psi) min.
Hold pressure (2 nd stage)	40–50 % of peak at C.O. or 35 bar (500 psi) min.	40–50 % of peak at C.O. or 35 bar (500 psi) min.	40–50 % of peak at C.O. or 35 bar (500 psi) min.	40–50 % of peak at C.O. or 35 bar (500 psi) min.	40–50 % of peak at C.O. or 35 bar (500 psi) min.
Back pressure	3.4–6.9 bar (50–100 psi)	3.4–6.9 bar (50–100 psi)	3.4–6.9 bar (50–100 psi)	3.4–6.9 bar (50–100 psi)	3.4–6.9 bar (50–100 psi)

Time					
Injection (fill) time	1.0–2.0 seconds	1.0–2.0 seconds	0.5–1.5 seconds	1.0–2.0 seconds	0.5–1.5 seconds
Pack time	0.5–1.0 seconds	0.5–1.0 seconds	0.5–1.0 seconds	1.0–1.5 seconds	0.5–1.0 seconds
Hold time	5.0–8.0 seconds	7.0–10.0 seconds	7.0–10.0 seconds	9.0–12.0 seconds	4.0–7.0 seconds
Cooling time	Part dependent	Part dependent	Part dependent	Part dependent (longer)	Part dependent
Injection speed	Medium – fast	Medium – fast	Medium – fast	Medium – fast	Medium – fast
Position ²					
Shot size	Part dependent	Part dependent	Part dependent	Part dependent	Part dependent
Transfer position (cut-off)	95–99% of full part	95–99% of full part	95–99% of full part	95–99% of full part	95–99% of full part
Decompress	13–25.4 mm (0.5–1.0 inch)	13–25.4 mm (0.5–1.0 inch)	13–25.4 mm (0.5–1.0 inch)	13–25.4 mm (0.5–1.0 inch)	13–25.4 mm (0.5–1.0 inch)
Cushion	3.2–6.4 mm (0.12–0.25 inch)	3.2–6.4 mm (0.12–0.25 inch)	3.2–6.4 mm (0.12–0.25 inch)	3.2–6.4 mm (0.12–0.25 inch)	3.2–6.4 mm (0.12–0.25 inch)

¹ Processing conditions listed are for typical start-up conditions for comparison purposes. Most applications are part dependent and will require process adjustment after start-up.

² Use “Screw Position” to switch from 1st stage injection (Velocity Control) to 2nd stage injection (Pressure Control).

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