Exit and Quench Temperature Data for Selected 6xxx-Series Alloys

Alloy	Min. Press Exit Temp (deg-F)	Critical Cooling Rate (deg-F/sec)	Critical Cooling Range (deg-F)	Cooling Time (sec) at Minimum Cooling Rate	Cooling Time (sec) at Maximum Cooling Rate
6063	930	2-3	840-480	180 (at 2 deg/sec)	120 (at 3 deg/sec)
6463	930	5	840-480	72 (at 5 deg/sec)	72 (at 5 deg/sec)
6063A	930	3-5	840-480	120 (at 3 deg/sec)	72 (at 5 deg/sec)
6060	930	3-5	840-480	120 (at 3 deg/sec)	72 (at 5 deg/sec)
6101	930	3-5	840-480	120 (at 3 deg/sec)	72 (at 5 deg/sec)
6005A	950	5-15	860-480	76 (at 5 deg/sec)	25 (at 15 deg/sec)
6061	950	10-20	860-480	38 (at 10 deg/sec)	19 (at 20 deg/sec)
6082	950	10-20	860-480	38 (at 10 deg/sec)	19 (at 20 deg/sec)
6351	950	10-20	860-480	38 (at 10 deg/sec)	19 (at 20 deg/sec)

Note: Press exit temperatures refer to the temperature of extrusion at the platen. These are a guide. Actual die exit temperatures are significantly higher.

Extrusion Process Establishes Temper and Mechanical Properties

The completed extrusion, which had achieved temperatures ranging from 900 to 1,100 degrees Fahrenheit or 480 to 595 degrees Centigrade (typical for 6xxx alloys) inside the press, begins to cool immediately after exiting the press. This process of heating and cooling sets up the temper and mechanical properties of the extrusion, including tensile strength, yield, and elongation. Once it has left the press, the profile may be quenched, mechanically adjusted, and aged to meet specifications.

When artificial aging is required, extrusions are aged in specially designed furnaces using appropriate thermal cycles for the alloy and final temper desired.