This paper considers how to smooth three kinds of *G*1 biarc models, the C-, S-, and J-shaped transitions, by replacing their parts with spiral segments using a *single* cubic Bezier curve. Arc spline is smoothed to *G*2 continuity. Use of a *single* curve rather than two has the benefit because designers and implementers have fewer entities to be concerned. Arc spline is planar, tangent continuous, piecewise curves made of circular arcs and straight line segments. It is important in manufacturing industries because of its use in the cutting paths for numerically controlled cutting machinery. Main contribution of this paper is to minimize the number of curvature extrema in cubic transition curves for further use in industrial applications such as non-holonomic robot path planning, highways or railways, and spur gear tooth designing.