Exact Phase Advances for Optimum Betatron and Momentum Collimation, J.B. JEANNERET, CERN - In a two-stage collimation system, the particles which are not absorbed in a primary collimator can be stopped by a secondary one. The maximum amplitude of the secondary halo is completely determined by the phase advances between the primary and the secondary collimators, once the relative retraction of the jaws has been fixed. We show that a collimation insertion can be specified exactly, by computing in a correlated way the two betatronic phases advances of every secondary collimator relatively to a primary one without referring to a particular optics. The number of jaws needed to reach an almost ultimate performance can also be determined. This approach is extended to the case of momentum cleaning.