The performance of Active Magnetic Regenerators (AMR) does not depend solely on the magnetocaloric effect of their constituents. Rather, it depends on several additional parameters, including, magnetic field, geometry (hydraulic diameter, cross-sectional area, regenerator length etc.), thermal properties (conductivity, specific heat and mass density) and operating parameters (utilization, frequency, number of transfer units etc.). In this paper we focus on the influence of three parameters on regenerator performance: 1) Solid thermal conductivity, 2) magnetostatic demagnetization and 3) flow maldistribution due to geometrically non-uniform regenerators. It is shown that the AMR performance is optimal at an intermediate value of the solid thermal conductivity for many operating conditions. The magnetostatic demagnetization is shown to have a significant influence on the AMR performance, giving a strong dependence on the orientation of the applied field and the regenerator geometry. Finally, the flow maldistribution of non-uniform regenerator geometries is found to degrade the AMR performance even at minor deviations from perfectly homogeneous regenerator matrices. This paper reflects a summary of various recently published results.