

This work is focused on effect of various cooling strategies on surface roughness and tool wear during computer aided milling of soft workpiece materials. These milling operations were selected as dry milling, cool air cooling milling and fluid cooling milling. A cool air cooling system was designed and produced to cool end milling tools. Cool air was produced by a vortex tube. Annealed AISI 1050 was used as the workpiece material and cutting tool material was selected as HSS-Co8 DIN 844/BN. Optimal cutting parameters were selected according to workpiece hardness from reference catalog and kept for all tests. Tool wear and surface quality were measured for three different cooling types changing from ten minute machining time to thirty minute machining time. As a result, the surface roughness values for air cooling end milling are lower than dry end milling and are higher than fluid cooling end milling. The measured flank wear values (V_b) for air cooling milling are close to the values for fluid cooling milling at same cutting conditions. But, flank wear results at dry milling are quite above the certain critical values due to adhesion tendency and higher than fluid and cool air cooling milling.