A FeCrCuMnNi high entropy alloy was produced using vacuum induction melting, starting from high purity raw materials. The microstructure, texture and mechanical properties of the cold-rolled and annealed samples were investigated. XRD results revealed the existence of two FCC phases and one BCC phase. Microstructural evaluation illustrated that the as cast alloy has a typical cast dendritic structure, where dendrite regions (DRs) (BCC) were enriched in Cr and Fe. Interdendrite regions (IDRs) were saturated with Cu and Ni. The produced alloy revealed an excellent compromise in mechanical properties due to the mixture of solid solution phases with different structures: ٣٠٠ HV hardness, ٩٥٠ MPa ultimate tensile strength and ١٤٪ elongation. No obvious phase transformation was observed during rolling. FCC phases were more deformed as compared to the BCC phase and aligned along the rolling direction. Texture variation and formation of Brass and shear texture components was seen after cold rolling. With increasing thickness reduction, the strength and the hardness increased, where the elongation decreased. It was seen that after annealing, the FCC١ phase which goes through more strain, recrystallized earlier (lower temperature and time). In addition, it was seen that is more effective in recrystallization of this phase comparing to FCC٢ phase. Nucleation of FCC٢ phase initiated at ٨٠٠ °C mostly on the grain boundaries and the inhomogeneities, when the FCC١ was almost fully recrystallized. Deformation texture components eliminated slowly by increasing annealing temperature and D and Cube components form as a result of recrystallization. In addition, an excellent combination of strength and elongation was achieved in the partially recrystallized samples comparing to conventional alloys. The strength was affected more after annealing at the temperature higher than ١٠٧٣ K.