The deformation of commercially pure magnesium with various grain size in different temperatures is investigated in the present work. Compression and tensile test were done on three different samples in temperature range of 20°C-300°C. Samples are deformed at strain rate of 1,8 mm/min. Simultaneously, the acoustic emission is recorded. The microstructure of the deformed material is also studied by means of optical microscopy. We focus on twinning activity at various temperatures and asymmetry between tensile and compression deformation.