In checking for the roundness, the cylinder was mounted on the vee blocks then the checking was done on three different crossections until we insure the approximate checking.In checking for the concentricity the cylinder was mounted between the dead of the bench center so the reference axis was the axis of the bench center then a reference point was chose at the point which has the least deflection about the axis of rotation (reference axis ) then we turn the cylinder one revolution (stop every 45 degree) and record the deflections on the dial which is almost positive deflections else some cases so, the tolerance zone is known, which represents the possible axes that the cylinder could turn about so the size of the tolerance zone gives a sign to the performance of the lathing machine.Firstly, a reference point was a chose at the point which has the least deflection we consider its reading (0.00 mm ) then the readings were taken with respect to it so, by this way the tolerance for the periphery was determined so a possible shape for the periphery was drawn by a tolerance zone of (–0.02 mm to 0.37 mm) which should be transformed to (.00 mm to 0.39 mm) because in the roundness there is just unilateral tolerance.so, the cylinder can turn about many axes within the tolerance zone (0.00 mm to 0.25 mm)