Lecture #35
(tape #35)

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Review Problems

Process capability Cp, Cpk

Assembly

Questions on the workshops
Q1  The sum of sample standard deviation of 24 subgroups of size 4 is 460. The specification of the part is 500 ± 50. If the process is in statistical control, centered and has normal distribution. What percentage of the process is within the specification. What is the Cp and Cpk?
Q2 A hollow cylinder is made up of two semicylindrical parts. The assembly is held together by an epoxy layer that must be between 0.002 and 0.005 inch in thickness. Two cylindrical halfs are made from the same extrusion. If outer diameter of the assembly is to be 2.000 ± 0.010 inch, and a 5 sigma assembly, what would be the required nominal and tolerance for the dimension A of the individual part?
Q3  A woodworking company is shipping flat, plain doors. The thickness of these doors is $0.75 \pm 0.03$ inch. When the doors are shipped they are put in crates, with each crate holding 10 doors. A piece of cardboard is placed on either side of each door. The cardboard if $0.050 \pm 0.005$ inch. Statistically it has been shown that the process of making a the doors is $\pm 4$ sigma and for cardboard it is $\pm 2$ sigma.
The shipper wants to be 99.5% certain that 10 doors will fit into each crate, with the assembly at or below the cover level. What should the minimum depth of the crates be?