

Q-QUIZ OCTOBER 2018 - ANSWERS



Most real processes in practice are no longer normally distributed in long-term analyses. ISO 22514-2 shows how to classify changes in the location and variation of a process. This standard also describes the resulting distribution and calculation methods for C_p and C_{pk} or P_p and P_{pk} . To simplify matters, the normal distribution serves as an approach to teach the basics of process capability.

1. A process capability index of $C_p \geq 1.8$ is demanded for a normally distributed filling volume. In this case, the maximum permissible standard deviation amounts to 0.0037 cl when the specification is (10.0 ± 0.02) cl.
2. Provided that your data are normally distributed and $C_p = C_{pk} = 1$, the error proportion amounts to 0.27%.
3. The evaluation of a process based on long-term process capability indices leads to the conclusion that your process is capable and stable according to VDA guidelines. It is adjusted to the tolerance centre. So it meets the requirement of $C_p \geq 1.33$ and $C_{pk} = C_p$.
4. You calculate a pair of statistics in a process capability analysis for a two-sided quality characteristic. The combination of $C_p = 1.66$ and $C_{pk} = 2$, however, is even theoretically not possible.