

Solutions

2.1 A For a worst-case clearance model, subtract the largest shaft from the smallest hole for minimum clearance, and the smallest shaft from the largest hole for maximum clearance. The calculation assumes the stated dimensional limits and ideal geometry. Shape, alignment, temperature and measurement uncertainty can affect actual assembly.

2.2 minimum clearance=min hole–max shaft=12.0–11.8=0.2mm.

2.3 False. A tighter tolerance can increase cost, inspection time and waste, and may not improve the user outcome. A measuring instrument with a fine display does not automatically have the accuracy required to accept a part near its limit.

2.4 tolerance. tolerance means The allowed range of variation in a specified dimension.

3.1 Minimum $9.9 - 10.1 = -0.2$ mm; maximum $10.1 - 9.7 = 0.4$ mm. Interference is possible. Nominal clearance does not guarantee fit or certify strength.