

Bonus Tolerance

Mechanical Engineering

Why a hole made away from its worst size earns extra position tolerance.

At maximum material condition, a feature made away from its worst size earns extra position tolerance.

Bonus = difference from the MMC size · total = stated + bonus

Hole 10.0 to 10.5

Least clearance.

MMC is 10.0

Hole made at 10.3

The hole is bigger.

Bonus is 0.3

Stated position 0.2

0.2 plus 0.3.

Allowed 0.5 total

THE COMMON MISTAKE

× Taking MMC as the largest size of every feature

✓ MMC is the most material

For a hole the most material is the smallest hole. For a shaft it is the largest shaft. Getting it backwards inverts the bonus.

Bonus applies only where the drawing calls MMC on the tolerance.
Educational reference; ASME Y14.5 governs.