

Datum Reference Frame

Mechanical Engineering

Constraining six degrees of freedom in the order the part is actually used.

This is the 3-2-1 rule, and the order is part of the specification.

1

Choose the primary datum

The face the part seats on. It removes three degrees of freedom.

2

Choose the secondary

A face or axis square to it, removing two more.

3

Choose the tertiary

One more feature, removing the last rotation.

4

Match the real assembly

Datums should be the surfaces the part actually locates on.

5

Respect the order

A, B, C is a sequence, not a set. Reordering changes the result.

Datums chosen for inspection convenience rather than function produce good parts that will not fit.