**Implicit Design Characteristics vs Explicit Design Characteristics**

In the context of aerospace manufactured parts, the difference between implicit and explicit design characteristics lies in how clearly they are defined and communicated:

1. Explicit design characteristics

* These are clearly stated and documented attributes of a part or system.
* They are found in detailed drawings, specifications, and design documents.
* Think of features with dimensions, tolerances, materials, surface finishes, and other measurable parameters.
* Example: A blueprint specifies that a wing spar must be made of Aluminum 7075-T6 with a surface finish of Ra 0.8 and a length of 5.5 meters with a tolerance of +/- 0.5mm.

2. Implicit design characteristics

* These are not explicitly stated or formally documented but are understood or inferred based on common industry practices, regulations, experience, or the overall context of the design.
* These are often related to the intended function, manufacturing process, or environmental conditions the part will experience.
* They are "unspoken expectations" that contribute to the part's fitness for purpose and overall quality.
* Example: A designer may implicitly assume certain manufacturing processes will be used, leading to specific residual stress profiles in the material, even if these aren't explicitly called out in the design documents.

In essence, explicit characteristics are what is "written down" and measurable, while implicit characteristics are what is "understood" and assumed within the design and manufacturing environment.