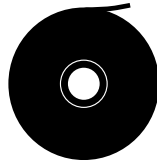


# A112

## Tooling and consumables



**Document Type** Article

**Document Identifier** 112

**Prerequisites** • [Systems Catalogue](#)

## Overview[[edit](#) | [edit source](#)]

Tooling & consumables are one of the key classes in the [Systems approach to composite materials](#) (or MSTEP collection) that defines a [process step](#). Like equipment, the choice of tooling is dictated by the part shape and material state prior to a process step, and the desired part shape and material state following the process step. Tooling & consumables constitute at least one boundary with respect to the part; hence, the parameters of the tooling & consumables can significantly impact the part that is produced on them.

In general, tooling is the term used to refer to objects that are generally rigid and are used to form the shape or affect the manufacturing response of the part in some way during the [process steps](#). They are typically re-usable so that they can be used for multiple parts, but their ultimate durability depends on the materials they are made from, how they are handled and the parameters of the process. Consumables — as the name suggests — are objects that are used as part of a manufacturing step, but they cannot be re-used for further parts. Examples of consumables are peel ply fabrics, breather fabrics, single use vacuum bags, vacuum bag tape, etc.

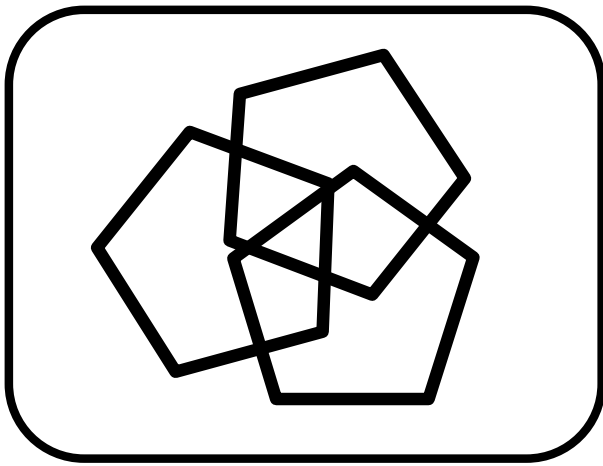
To learn more about tooling & consumables parameters navigate to the following link (note that more information is included in the level II tab).

- [Tooling & consumables parameters](#)

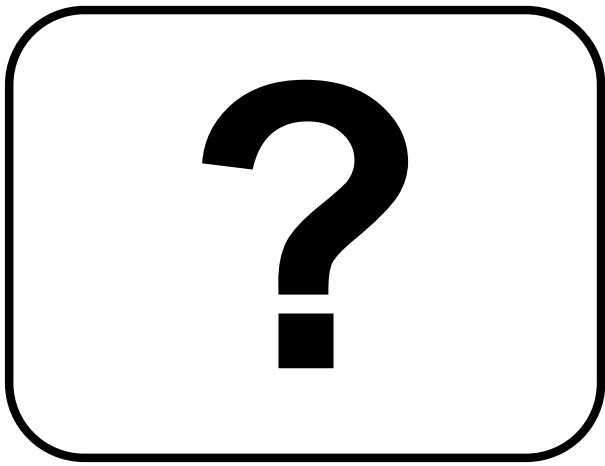
To learn how tooling & consumables may influence manufacturing outcomes, click on the links below.

- [Effect of tooling in a thermal management system](#)

- *Tooling & consumables effects for other manufacturing themes are coming soon*



**About**



**Help**

Material and process (M), Shape (S), Tooling and consumables (T) & Equipment (E) - all have an interlinked effect on the Process step (P). (See MSTe factory ontology)

Outcomes represent the range of response/sensitivity to factory system attributes. Those that fail to satisfy manufacturing requirements are known as defects. Examples of manufacturing outcomes include process parameter outcomes, material structure outcomes, and material performance outcomes.