INFORMATION

CAD/CAM MES
Software & Services

How to classify part classes

Standards in single-part and small-series manufacturing

There are many possible ways to subdivide parts into classes and to derive standard processes from them. In this article you can find some ideas to help you identify similar and related features in your parts. Part classes are standards and allow you to automatically apply methods that are:

- **Used frequently and successfully**
- **Proven to function well**
- **Proven to be cost-effective**

Ideas for finding similarities and relationships:

- **Surface qualities, tolerances**
- **Geometry**
  Smallest fillet, deepest pocket, fit surfaces or bores, large 3D fraction or ruled geometries
- **Programming and machining sequences**
  Placing bores, strategies and parameters, roughing, hardening, finishing
- **Machining tools**
  Size, length, cutting data, quality
- **Material, size of blank**
- **Technology**
  5-axis jobs, eroding surfaces, trimming, drilling, turning, laser cutting, simultaneous machining
- **Machines**
  Large machine, small machine
- **Clamping devices, units**
- **Maximum profit, shortest throughput time**
- **Industry, core competence**

The precision of the clustering will affect the degree of efficiency. If you want to prepare a more detailed design template that accounts for factors like manufacturing steps, you'll have to include more criteria in a class. Design and geometric variant groups usually produce a greater impact.
But forget about the 100% approach; the goal isn't instant perfection.

Example 1:
Homogeneous blanks – more efficient due to low procurement effort, lower prices and simple storage.

Example 2:
The same material – more efficient due to equivalent standard machining tools with standard parameters stored in CAM, shorter CAM programming time, shorter setup time, safe, proven milling procedures, less machine downtime, standard tools that simplify decisions, reduced tool costs, easier procurement, better prices.

Example 3:
The same machining operations – more efficient on multiple process levels due to the same manufacturing steps in CAD preparation and CAM programming, the same tool groups, the same technology, the same parameters and strategies, faster CAD and CAM, the same machines, more efficient machine automation, and more.

Five important facts about part classes:

1. Part classes improve cost effectiveness. The result is shorter machine run times and higher machine productivity, faster throughput, and continuous optimization with safe, fast and transparent processes that can be repeated by any employee.
2. Part classes have a positive impact on the entire process. If the designer is already working using part classes, the most important features and information are included right from the start, and they automatically flow into downstream processes.
3. Part classes lay the foundation for CAD/CAM automation and process improvements. Tebis stores design standards and programming templates that are managed in libraries.
4. The efficiency improvement resulting from classification adds up over multiple process levels. Part classes are at the very beginning of the process chain. The greater the depth of the classification level, the greater the efficiency potential.
5. Accurate part classes require individual initiative and an investment of time – because no one knows your company as well as you do. Your individuality is your equity, which is why part classes aren't transferable on a 1:1 basis. But the principle of leveraging their efficiency definitely is!

Take the best path to a more efficient future and find out more:

Nine steps of part classification

**Contact us with questions about part classes, standards and automation.
Let's talk and find the answers you need.**

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