



# Part Numbering Systems for Custom Designed Products

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# Part Numbering Systems for Custom Designed Products

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## Contents

1	General.....	3
2	Preamble .....	4
3	Product – Centric Part Numbering Systems .....	7
3.1	The System .....	7
3.2	Example of a Product – Centric Part Numbering System.....	8
3.3	Characteristics of this Part Numbering System:.....	9
4	Job - Centric Part Numbering Systems.....	10
4.1	The System .....	10
4.2	String length .....	12
4.3	Example of Job – Centric Part Numbering System .....	12
4.4	Supporting Documents.....	13
4.5	Characteristics of this Part Numbering System .....	14
5	Assembly - Dependant Part Numbering Systems.....	14
5.1	The System .....	15
5.2	String Length.....	16
5.3	Example of Assembly – Dependant Part Numbering System .....	17
5.4	Characteristics of this Part Numbering System .....	18
6	Non-Descriptive Part Numbering Systems .....	19
6.1	The System .....	20
6.2	String Length.....	21
6.3	Top Level Documents .....	21
6.4	Parts.....	21
6.5	Assemblies.....	22
6.6	Supporting documents .....	23
6.7	Hardware.....	23
6.8	Purchased assemblies .....	24
6.9	Top level assemblies.....	25
6.10	Example of Non-Descriptive Part Numbering System.....	25
6.11	Characteristics of this Part Numbering System .....	26
7	Supporting best practices and processes .....	27
7.1	Component Description.....	27
7.2	Part Numbering Logs .....	28
7.3	PDM Vaults .....	29
8	Company mergers .....	30
9	Conclusion.....	31



## 1 General

Design engineering activities result in physical products that can range anywhere from assemblies of a few parts to very complex machines. The more complex the assemblies, the more difficult it is for various departments (Engineering, Manufacturing, Assembly, Purchasing, Operations, etc.) to keep track of the parts and assemblies generated. Moreover, the older the design is, the more difficult it is to go back and understand the design's original assumptions, its evolution and implications on other products.

To help organize the result of the design engineering activities, Part Numbering Systems are used, but not always properly or to their full potential. How many times have you tried to read assemblies that had part numbers given by various designers, each one of them with their own system, and many of them inconsistently applied? Do you remember how difficult it was to understand the design? As the result of that you probably had to spend additional time learning the various systems, and figure out how they relate to each other. One can easily recognize that it is better to have a unified system in your company, that is clear, simple to understand, gives you reliable information just by reading the part numbers and makes it a breeze to sort thru the drawings and related documents. The following will present a few commonly used Part Numbering Systems and the principles they are based on.

A Part Numbering System is a set of procedures and processes that organizes the result of the engineering work in an Engineering Department. Those systems can be used by other departments down the project stream from the Engineering, such as Purchasing, Manufacturing, Operations, Sales, etc.; however the Part Numbering Systems are usually defined by the Engineering Department, as this department is the originator of the physical product. As projects develop, as they become more complex and increase in number, it is becoming more and more difficult to determine the components of a project or how a proposed change in a part or sub-assembly affects other projects. Having a good Part Numbering System (together with its support

practices and processes) allows the user (engineer, project manager, purchasing agent, foreman, technician, etc.) to not only efficiently and un-equivocally determine the components of an assembly - being them parts, assemblies or supporting documents (schematics, calculations, simulations, etc.) - but also allows for very quick access to important information related to those components.

## **2 Preamble**

Part Numbering Systems organize the result of the design engineering work (parts, assemblies and related documents) by assigning them unique identifiers. Good, efficient Part Numbering Systems have the following characteristics:

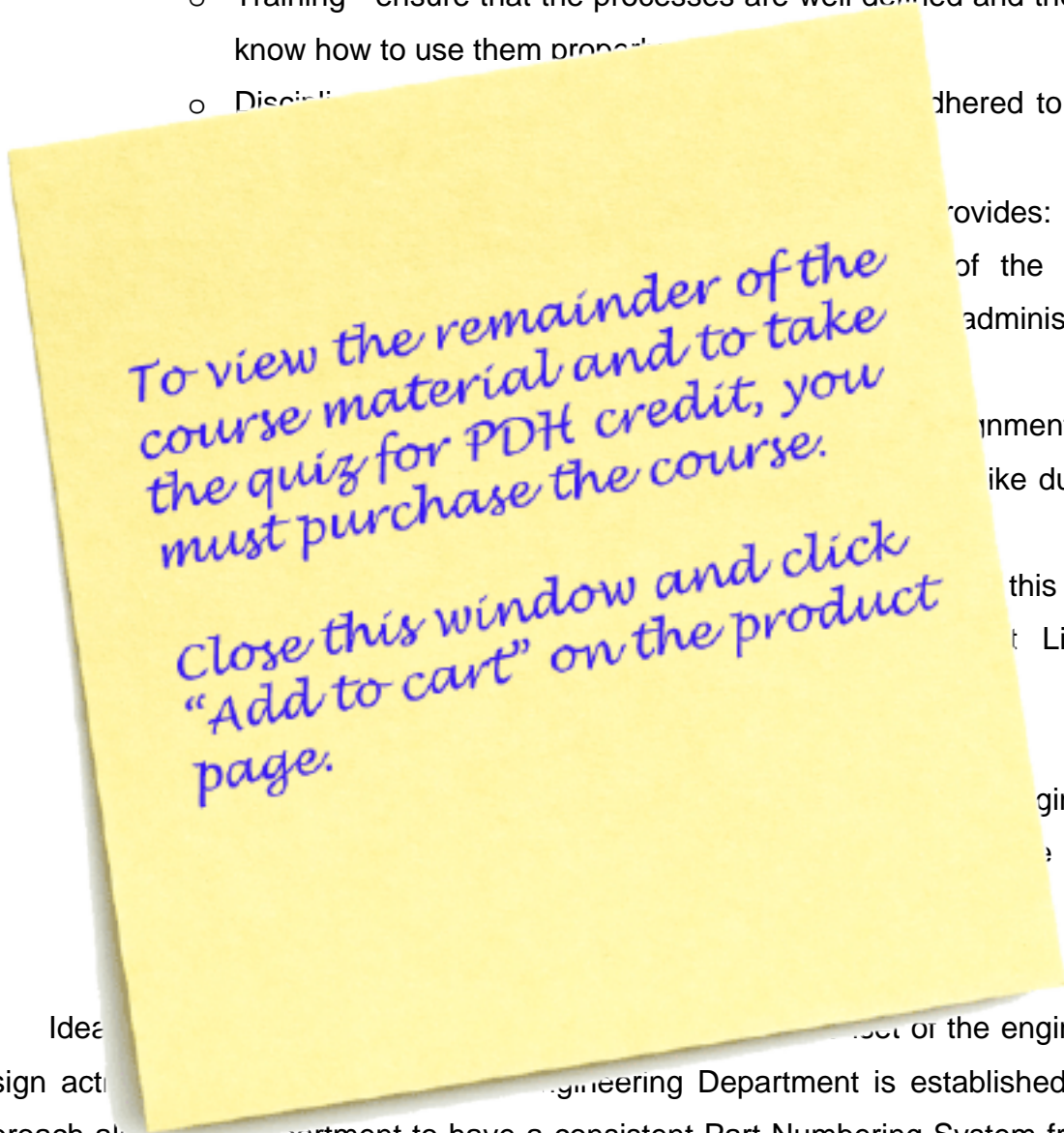
- are easy to understand – anyone with minimal training should be able to understand them and use them
- provide consistency – they ensure that the same things are identified the same way, always
- provide unique numbers – to avoid expensive mistakes and confusions by not calling different things the same way
- allow for easy retrieval of the engineering work – being well organized helps the user to easily understand the design at a later time, when the familiarity with it is already lost.

A number of supporting conditions need to be in place to allow the Part Numbering System to be fully effective. Those conditions are not related to the system itself, but are part of the organizational business support and are related to the organizational culture. Just like the Engineering Department is integral part of a business organization, the Part Numbering System needs to interact well with the rest of the organization. On one hand the Part Numbering System needs to interface well with the rest of the Enterprise Resource Planning systems (ERP). On the other hand the company's culture needs to have well established and well followed upon practices that can be used in the application of the Part Numbering System. A good Part Numbering

System complemented with good application of those conditions will produce an effective and highly productive work flow for the company.

Those supporting conditions are:

- The company/department culture is lined up for such a system
  - Training - ensure that the processes are well defined and the users know how to use them properly
  - Discipline - adhered to by the



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Idea... of the engineering design act... Engineering Department is established. This approach also... department to have a consistent Part Numbering System from the very first design. This approach assumes that the system designer has a pretty good