

Parts & Documents Numbering Principles

Scope

This paper contains my personal recommendations for creating of parts and documents numbering schemes.

Recommendations

Numbers (in CM sense) are used for identification and for classification. In the past part and document numbers often have had identifying and classifying function in common. They often have up today. Don't do so!

If you are free to create a new numbering scheme and if you have a PDM database to maintain all your parts and documents be happy and use the following rules:

1. Use each database field for storing of only one information, i.e. store each singular information into another database field. Each attribute/property needs its own database field. Avoid redundancy of data.
2. Incorporate no or only minimal significance into an identifying number. The best ID number is a non-significant sequential number.
3. Classification numbers may have significance, but remember that each significant numbering scheme may (or will?) collapse in future. Significant numbers should have enough "free space" for future.
4. Allowed characters in numbers are
 - numerals,
 - capital letters,
 - the minus sign "-".

Never use blanks in numbers.

Never define numeric numbers with leading zeroes. If you want to have a constant number length check if this is really necessary and if yes, use a digit > 0 or a letter as first character of the number.

Never define a number scheme that could be interpreted as a date when importing the number into MS Excel or the like.

4a. Keep ID numbers as short as possible. Avoid long numbers with many constant digits causing waste of time when writing or typing them. This applies to all numbers like part numbers, document numbers, document types, revision indicators ...

The number ranges do not need to cover more than 10 years. If a number range runs out just add a digit to the sequential number.

Example:

Start part numbers at 10 001 (enough for 90 000 parts)

Start doc numbers at 200 001 (enough for 800 000 documents)

5. Parts are identified by the unique part number.

6. Never code into the part number (part ID number):

- classification information,
- status or revision information,
- sourcing or manufacturing methods,

- kind of the material of the part,
- where used information (depending on next higher assembly or project),
- or any other temporary information.

7. My preferred part number formats are**Y#####**

Advantage: Short. Can be assigned fully automatically.

Disadvantage: Sometimes difficult for people being used to read information from the part number.

or

Y#####[-TT]**Y#####-GG[-TT]**

Advantage: Easier for people being used to read information from the part number.

Disadvantage: Longer. Cannot be assigned fully automatically.

where:

Y = a defined constant numeral > 0 or a defined capital letter. This is to show that it is a part number (the only one significance) and to force a constant length of the part number avoiding leading zeroes.

= a sequential number of a constant minimum length.

TT = the **tab number** (often called dash number). **-TT** is an optional suffix for family parts or parts on multi part drawings like

- opposite parts: Left: -01, Right: -02
- bulk items: e.g. cable assemblies: 1m: -01; 1.5m: -02
- Options, features: red: -01; blue: -02

GG = the **part generation number**. This is a number representing the historical sequence of non-interchangeable parts, which have been developed from each other.

A part generation > 01 indicates that this is a part created by redesigning the part having the same part basis number Y##### and the previous part generation number.

The part generation number GG is increased only then if the new part needs a new part number according to the [interchangeability rules](#).

Note:

The part generation number forms an integral part of the part number. It is not a revision and must never be referred to as revision or part revision.

In principle it is not necessary to use a part generation number. But it is useful if the people want to see the history of a part just by its part number.

8. Documents are identified by the Document ID. The Document ID is the unique combination of Document type + Document Number + Revision. It must be stated on the document.

Note:

Language and file extension are not part of the Document ID.

9. Each document type may have its own independent document number range. Doc Numbers can be doubled, the Document ID not. If you do not want to allow doubled document numbers, you need a central organization assigning document numbers. IMHO it is better to let the sub-organizations/departments control the numbers of their own specific doc types by them self, according to rules stated by CM.

10. Strictly part specific documents – like drawings – in principle may have document numbers not depending on the part number. Doing so the company has all degrees of freedom in creating single part and multi part drawings. Document numbers can be assigned fully automatically. However, the part numbers(s) of the part(s) shown on the drawing must be stated on the drawing.

10a. If a company for historical or other reasons does not want to use independent part and doc numbers the author recommends that strictly part specific documents – like single part or multi part drawings – get the part number or a part of the part number as document number. Documents not exclusively referring to one part or a part family get a separate document number range.

Example:

Parts on the drawing	Corresponding drawing number
12345-01	12345-01
12345-01-01 12345-01-02 12345-01-03	12345-01 or 12345-01-XX
12345-01 47111-02	200234

10b. It is indispensable to mentally differentiate clearly between document number and part number. Part number and document number are always two entirely different things even if the numerical part is identical for both numbers or derived from each other.

11. All other (not strictly part specific) documents get a non-significant number as document number. Separate sub-documents can get the main document number plus an additional dash or suffix number.

12. Use capital letters as revision indicators for documents. Revision letters can be better distinguished from part and document numbers than numeric revision indicators. Count revision letters like columns in MS Excel:
A, B ... Z, AA, AB ... AZ, BA ...

The first (initial) revision gets the revision letter A.
Do not use the bad practice of not-assigning any revision indicator to the initial revision.

In case of numeric revisions avoid leading zeroes.

13. Never code status or maturity information into the revision indicator. The document revision is just the counter of released document versions.

14. Releasing a document means providing or passing on the document for use. A document is considered released just by providing it or passing it on to someone for use/for application, regardless of whether it is marked as „Released“ or not, and regardless of the maturity status of the document content or of the project where the document is used.

15. Do not print or mark the document status – like Not released, Released, Canceled – on the document itself. The document status of a certain revision may change in time although the revision indicator does not. The current document status can and must be seen only in the PDM system. The same applies to the maturity status of the document content.

On the other hand, note: The release date must be stated on the document. But having a release date does not mean that the document is still released.

16. Link part related documents to all related parts using the functionality of your PDM system.

17. If you use SAP or if you collaborate with organizations using SAP define your field lengths according to limitations in SAP, e.g.

Property	Field label in SAP	max Length in SAP
Part number	Material	18
Part name	Material short text	40
Document type	Document type	3
Document no.	Document	22
Revision	Doc.vers.	2

18. Always, really always and everywhere, write the short date in the ISO format "YYYY-MM-DD" acc. to ISO 8601. This format is correctly interpreted all over the world (also by people who have never heard about ISO 8601).

Revision History

Rev.	Released on	Author	Modifications
A	2009-03-24	Jörg Eisenträger	Initial revision
B	2019-05-16	Jörg Eisenträger	Added paragraphs 4 and 15. Amended paragraphs 6 and 7. Renumbered the paragraphs. Some editorial modifications.
C	2019-05-20	Jörg Eisenträger	In par. 6: Specified the "where used information" more precisely.
D	2019-06-04	Jörg Eisenträger	Revised par. 8 - 15. Added par. 17.
E	2019-08-09	Jörg Eisenträger	Revised par. 7, 10, 10a. Added par. 4a.
F	2019-12-03	Jörg Eisenträger	Added par. 18.