



# Welded assembly

General methodologie

EDMS number : 1105419



# Existing methodologies

- **CATPart + CATProduct**
  - Create all CATPart corresponding to individual pieces of the assembly
  - Create an assembly CATProduct
  
- **MultiBody**
  - Create just one CATPart
  - Add in the CATPart a body for each piece who makes up the assembly



## ■ Advantages of CATProduct and MultiBody by users

- On general
- On functional welded assembly
- Copying an existing assembly to create a new similar welded assembly
- On manufacturing welded assembly (machining steps)

## ■ Structures on CATIA / SmarTeam

- Functional welded assembly
- Copy of functional welded assembly
- Manufacturing welded Assembly

# General Advantages



## CATProduct

- **Automatic BOM COMPARE** on the drawing
- **Différents materials** on the Parts, which will automatically appear in the BOM
- Use of standard components (pipes, flanges, etc.)
- Possibility to use more time a piece in the same Assembly, limiting the size of the Assembly and decreasing the time for open it
- Possibility to use a "reuse pattern"
- **Simplicity to create dxf drawing** for water jet cutting, wire cutting, etc...and detail drawings if necessary
- Creation of sections 3D of the assembly
- Creation of Scenes
- Simplicity to move the Parts
- Can later generate a multibody if necessary
- **Possibility to create detail drawing for the assembly sequence (manufacturing)**

## MultiBody

- **Rapidity and simplicity**
- **Easier parameterization in the assembly**
- Unique machining in case we have to do a sequence of fabrication



# Advantages on Specific cases

## ■ Functional welded assembly

### CATProduct :

- Automatic BOM COMPARE

### Multibody :

- Parameterization in the assembly

## ■ Copy of functional welded assembly

### CATProduct

- Less consequences if one part is deleted
- Easier to make big changes

### MultiBody

- Rapidity and simplicity
- Easier parameterization in the assembly

## ■ Manufacturing welded assembly

### CATProduct

- Existing link with rough pieces
- Possibility to create detail drawing on the different steps

### MultiBody

- Existing link with rough pieces
- Unique machining on more pieces



# Conclusions

## GIC recommendations

- For the important structures we suggest to use CATProduct composed by various CATPart
- For small assemblies (<5 pieces) we suggest to use Multibody

## GUCS recommendation

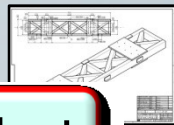
- For various reasons it is strongly recommended to use the CATProduct

# Catia / SmarTeam examples



- **Methodologies advised by GUCS to organize the CATProduct and CATPart on SmarTeam**
  - Functional welded assembly
  - Copy of functional welded assembly
  - Manufacturing welded assembly

# Functional welded assembly



CATProduct  
ST000010

CATPart  
ST000011

CATPart  
ST000012

CATPart  
ST000013

## Additional information:

- To have the possibility to use an automatic BOM COMPARE **each Part must have different ST number**
- The workshop prefers to have on the drawing one **part-list for each different component**, also if they are produced by the same rough material
- On the part list name (item) put just a general description (Ex: lateral plate, base, etc...) **without specify dimensions and manufacturing process of rough material** if it's not functional

The definition and the designations are completely independent

Profile Card

CATIA Product

Doc. Number: No preview available  
ST0307381\_01  
Semi support 2.1

Definition: Semi support TEST

Rem EN Designation: Semi support TEST CAD

Rem FR Designation: Semi support TES CAD

Nomenclature: CDD No.

Material:

Design State: In Work

Smart Team State:

Document Type: Master

Level Of Detail:

Coord System:

Description:

Reason for Publication:

EDMS URL: [https://edms.cern.ch/document/A/HCHTCS\\_0002](https://edms.cern.ch/document/A/HCHTCS_0002)

Responsible: Luca - Gentini Take Resp.

Resp. State: Keep Always OverW.

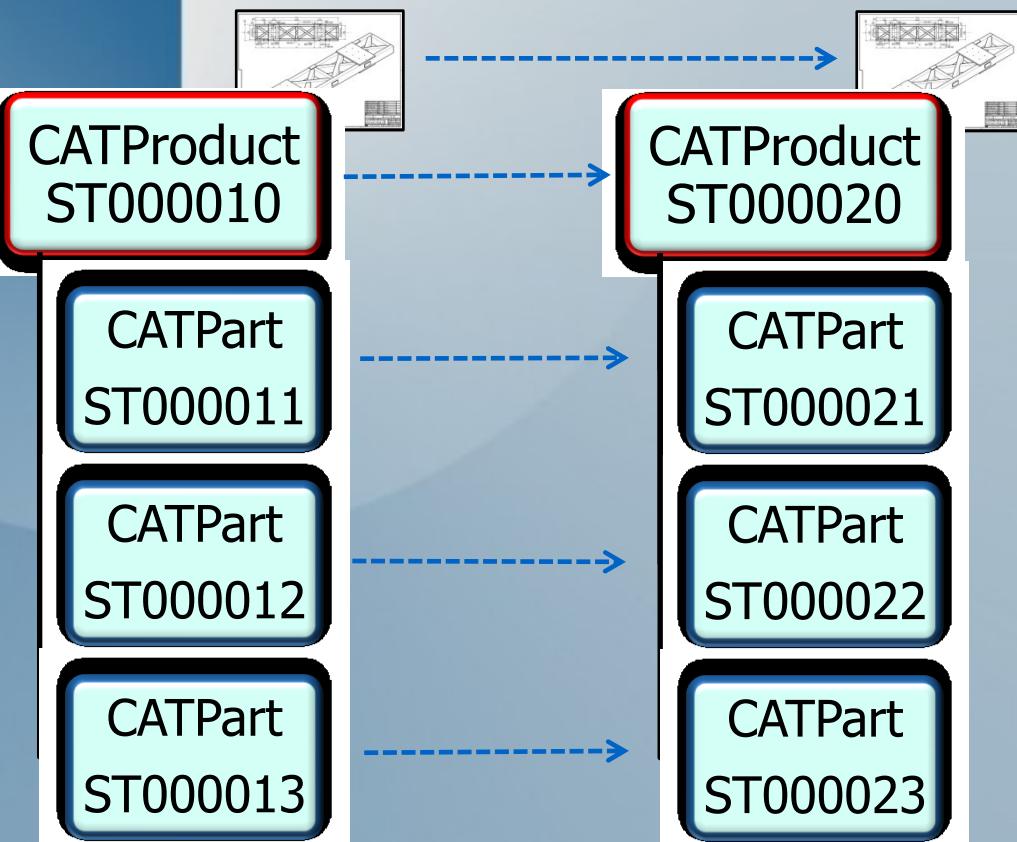
Team: No Team Change Team

General System Information Catalog

OK Cancel Help

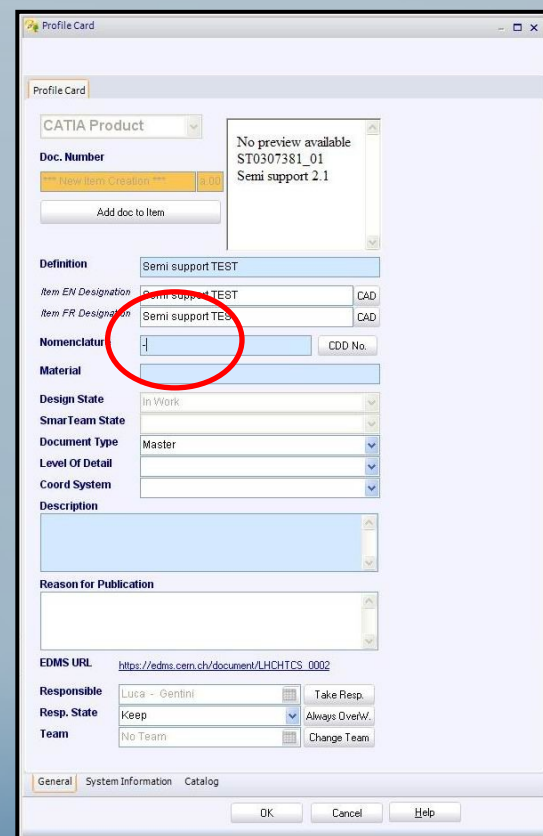


# Copy of welded functional assembly



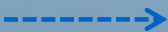
## Additional information:

- Do not forget to **remove the nomenclature** on the 3D and 2D models and put "-" during the save!!



**New ITEM**

- Save as

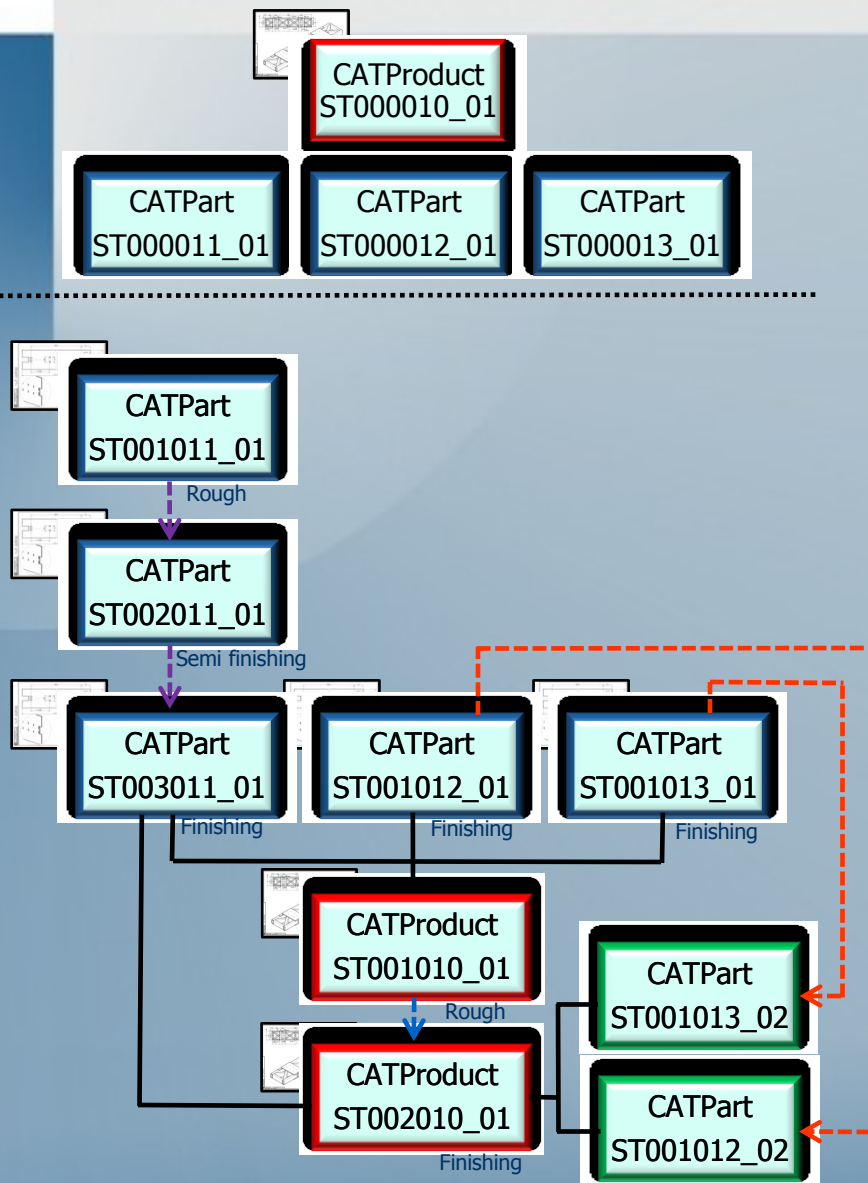


# Manufacturing welded assembly



Functional

Manufacturing



## Additional information:

- At the moment when we need **several drawings** of the same piece the **item must be different**
- When we make a machining in an assembly, **we can not use BOM COMPARE!!** We must manually link to the item of the Finishing assembly, the Item of the rough assembly
- At the end of the procedure we will have two CATProduct with same geometry, but composed by different CATPart, different ST numbers and different CDD number
- The CATPart who compose the finishing assembly will never have a drawing because they never exist alone so we can use the same item of the source CATPart



# References

- **Partbody and Body (GIC)**  
*EDMS number : 870689*
- **Reprise d'usinage dans Catia pour l'RFQ (Marc Timmins)**  
*EDMS number : 998804*
- **Ensemble mécano soudé : recherche d'une méthodologie générale (Luca Gentini)**  
*EDMS number : 1096557*
- **Ensemble mécano soudé : Exemples pratiques (Luca Gentini)**  
*EDMS number : 1105418*



**Thank you  
for your attention**