Tekla Structures Basic Training

Tekla Structures 10.0

April 26, 2004

Contents

14 Multi-drawing and Multinumbering

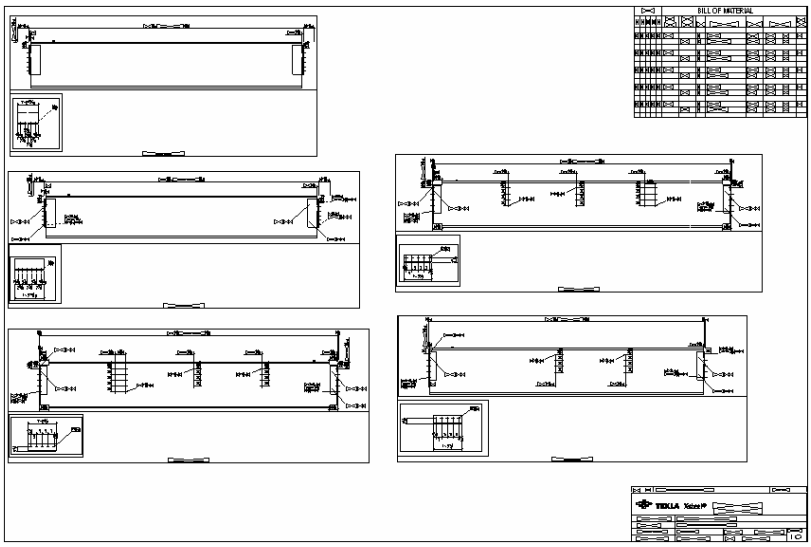
In this chapter

We will learn about the creation and use of multi-drawings and explain the principles of multinumbering. We will also touch on the updating of multi-drawings and revision control.

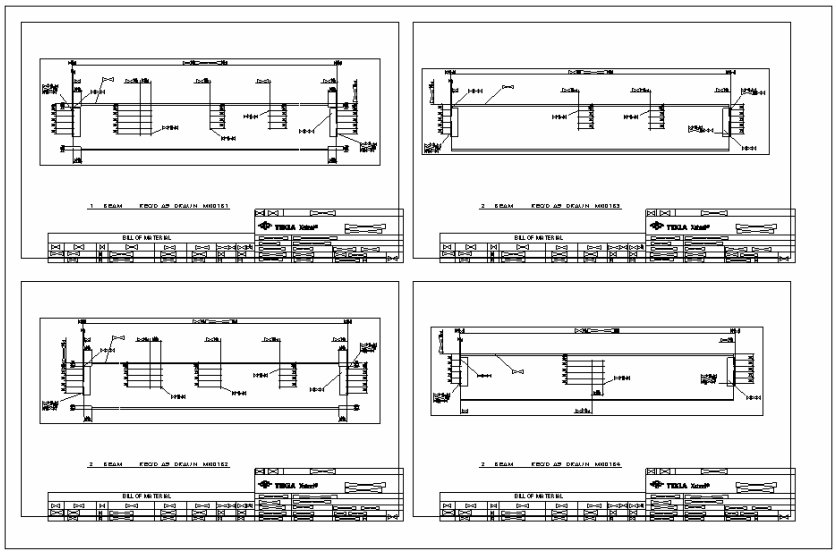
14.1 Multi-drawings and Multinumbering in General

Multi-drawings are used to gather assembly and/or single part drawings onto a single sheet, below are some examples:

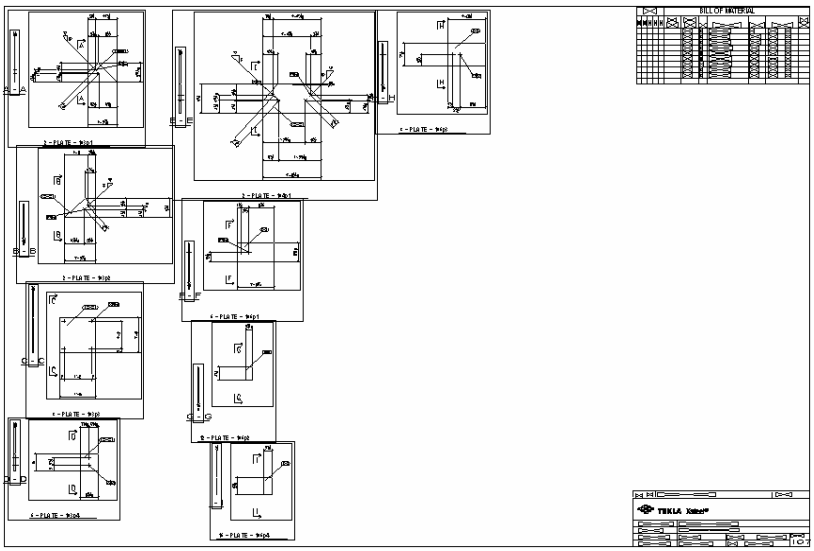
- You want all the assemblies on same size drawing sheet. Some assemblies might need a larger (A1 or 24X36) sheet, but others might require less space (A3 or 17X11). When using multi-drawings you can link as many assemblies as will fit on one larger sheet.



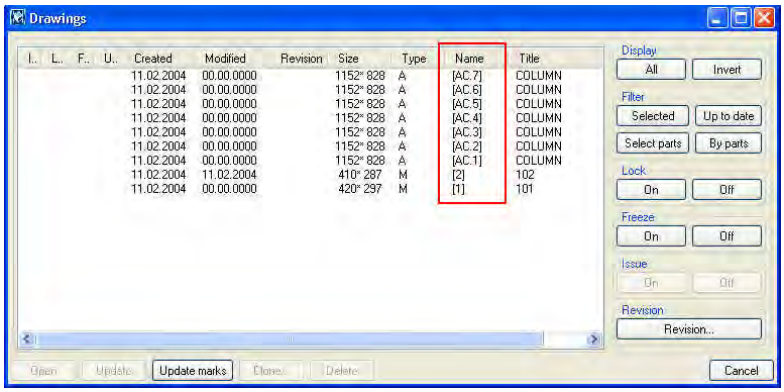
- Assembly or single part drawings can be also linked to multi-drawing with layout, and then each assembly can have its own Bill of Material.



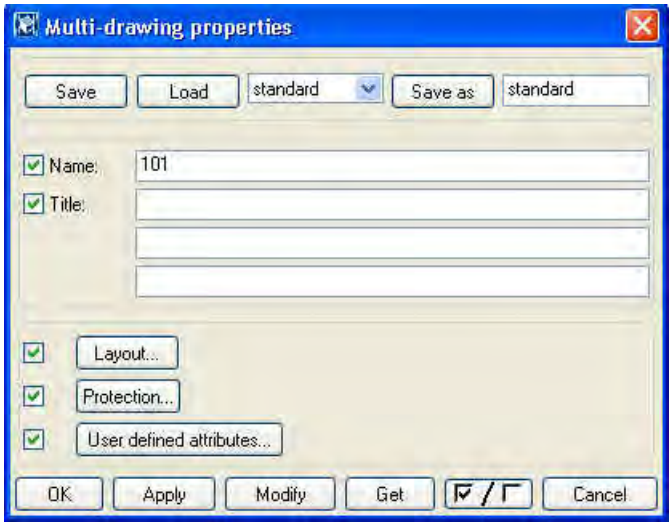
- You want all of the single part drawings of plates with the same thickness gathered onto one sheet.



- If you need to have the sheet number included as part of the assembly and/or part mark, you can use multinumbering. The only way to achieve this is to link the assembly and/or single part drawings to a multi-drawing.



Multi-drawing Properties



Name: can be used to define the content of the drawing. The name field will be shown on the drawing list. For multinumbering the **Name:** field will correspond as the multi-drawing number and depending on the multinumber setup it will be added to assembly and/or part mark e.g. Name: 101 -> Assembly mark 101B1. To get information on common drawing properties see:

Help: Drawing properties > Common drawing properties

Options for Creating Multi-Drawing

You can link or copy assembly/single part drawing views with or without layout to the multi-drawing. The difference between link and copy is that with copy the connection to original drawing is broken, where as with link the connection to original is kept.

1. You can create empty multi-drawings and then link or copy assembly or single part drawings interactively. This option is a little bit laborious but you can optimize the use of paper.
2. You can create multi-drawings automatically from selected assembly or single part drawings. Just select all the drawings you want, Tekla Structures will link as many assembly/single part drawings to one sheet as will fit and then create another multi-drawing and continue the linking procedure. This is an easy way of creating gather sheets.
3. It is also possible with one command to create assembly or single part drawings and then multi-drawings from these drawings. This option isn't recommended because you can't use specific settings for different types of parts.
4. The drawing Wizard can be also be used; the procedure is a mix of options 2 and 3. Everything is done automatically but with specific settings for different types of parts.

For more information, see: **Help: Drawings > Multi-drawings > Properties**.

Multinumbering Setup

In a case where your fabricator wants multinumbers for assemblies and/or parts those drawings need to be linked to multi-drawings. Multinumbers are assigned according to the batch file settings.

The following lines in the batch file affect numbering:

```
rem set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=
rem set XS_USE_MULTI_NUMBERING_FOR=
rem set XS_USE_NUMERIC_MULTI_NUMBERS_FOR=
rem set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR=
rem set XS_USE_ASSEMBLY_NUMBER_FOR=
rem set XS_SWITCH_MULTI_NUMBERS_FOR=
rem set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=
rem set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS=
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=
rem set XS_ALLOW_DRAWING_TO_MANY_MULTI_DRAWINGS=
rem set XS_SWITCH_POS_NUMBERS_FOR=
rem set XS_PART_MULTI_NUMBER_FORMAT_STRING=
rem set XS_ASSEMBLY_MULTI_NUMBER_FORMAT_STRING=
```

Using these variables we can get following types of multinumbers:

E.g. assemblies:

```
A101, B101, C101, …
101A, 101B, 101C, …
101B1, 101B2, 101B3, 101C1, 101C2, …
1B101, 2B101, 3B101, 1C101, 2C101, …
101BA, 101BB, 101BC, 101CA, 101CB, …
AB101, BB101, CB101, AC101, BC101, CC101, …
```

E.g. parts:

```
a101, b101, c101, …
101a, 101b, 101c, …
101a1, 101a2, 101a3, 101p1, 101p2, …
1a101, 2a101, 3a101, 1p101, 2p101, …
101aa, 101ab, 101ac, 101pa, 101pb, …
aa101, ab101, ac101, pa101, pb101, pc101, …
```

See end of the document for more details and setup instructions.

If you work for many fabricators and you need to define different numbering setups for each one you can create multiple batch files. Click the attached link for a Batch file tutorial.

Help: System > Files and Folders > Startup batch file

part drawings to multi-drawings. This will cause the loss of all drawings which have a multinumber assigned.

14.2 Creating Multi-drawings

We will create multi-drawings using methods 1 and 2 described under **Options for creating multi-drawings**. We will use assembly and single part drawings created in lesson 11. You can review training lesson 11 for more information about creating assembly and single part drawings.

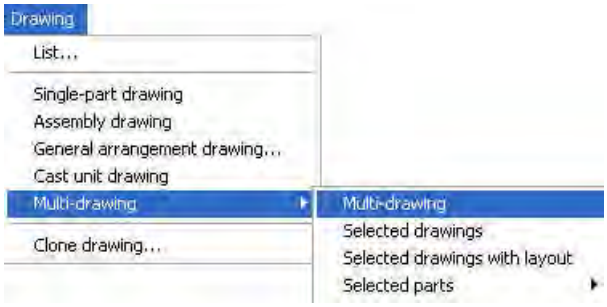
If you need multinumbers you need to edit batch file and restart Tekla Structures. Also if you want multinumbers applied to secondary parts, you need to remember to include the single part views in the assembly drawings.

All the necessary editing should be done in the assembly or single part drawings. The multi-drawing is just intended for use as a gathering sheet.

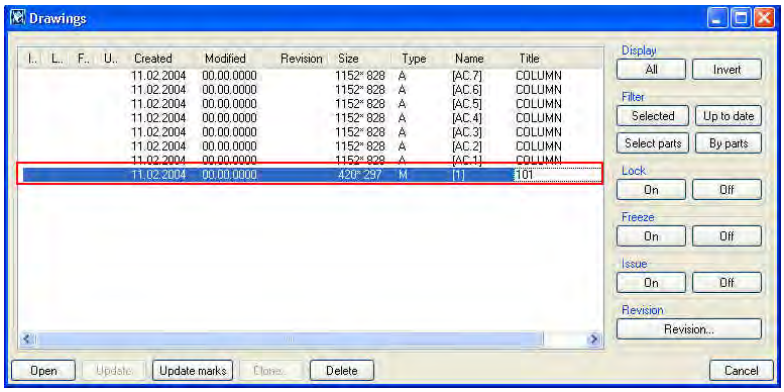
Create Empty Multi-drawings and Link Assembly Drawings Manually

Create empty multi drawing

1. Set multi-drawing properties (**Properties > Multi-drawing…**).
2. Load **TEKLA_multi** setting from the top of the dialog. Lock the setting and close dialog by clicking **OK**.
3. Create an empty multi-drawing (**Drawing > Multi-drawing > Multi-drawing**).

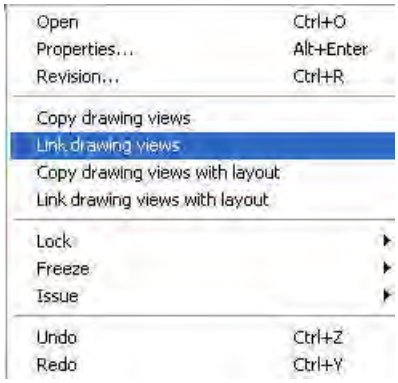


You should be able to see that there is new drawing on the list M, [1], Title 101.

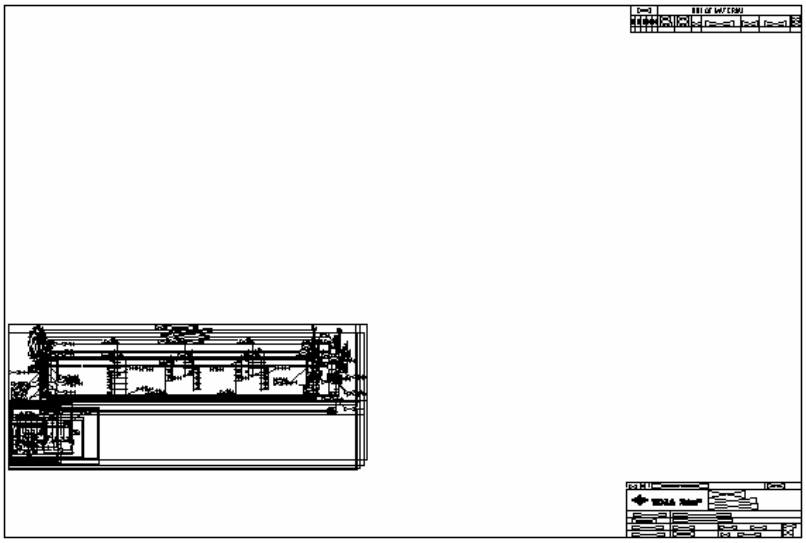


Link assembly drawings to multi-drawings

1. Open the multi-drawing.
2. Highlight the first 5 beam assembly drawings.
3. Hold the cursor over the highlighted drawings right-click and select **Link drawing views.**

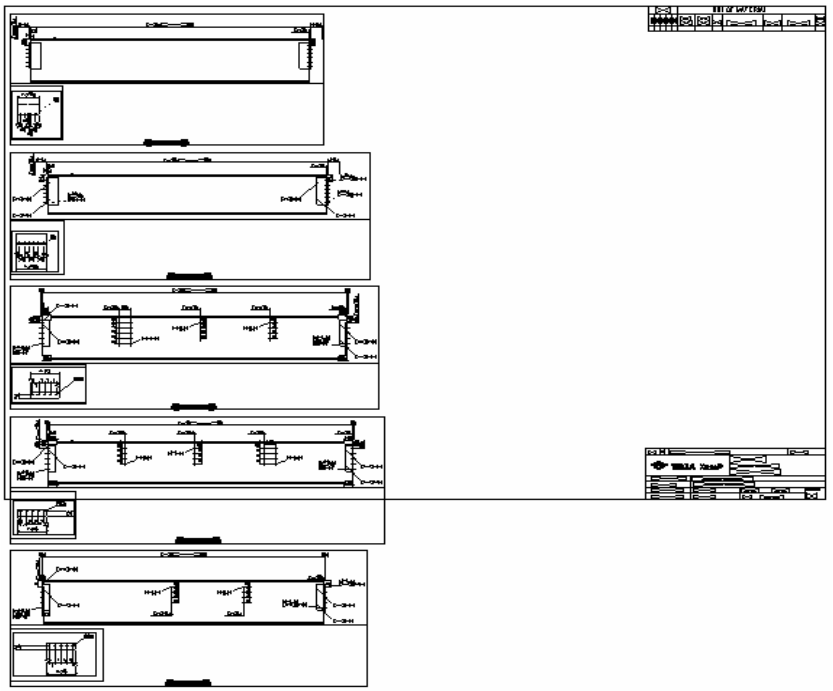


In the multi-drawing, you will see the 5 drawings being linked to the multi-drawing, one on top of the other. If you are using multinumbering you can see the assembly marks changing on the drawing list, according to your numbering setup e.g.101B1, 101B2 etc.



Place views on multi-drawing

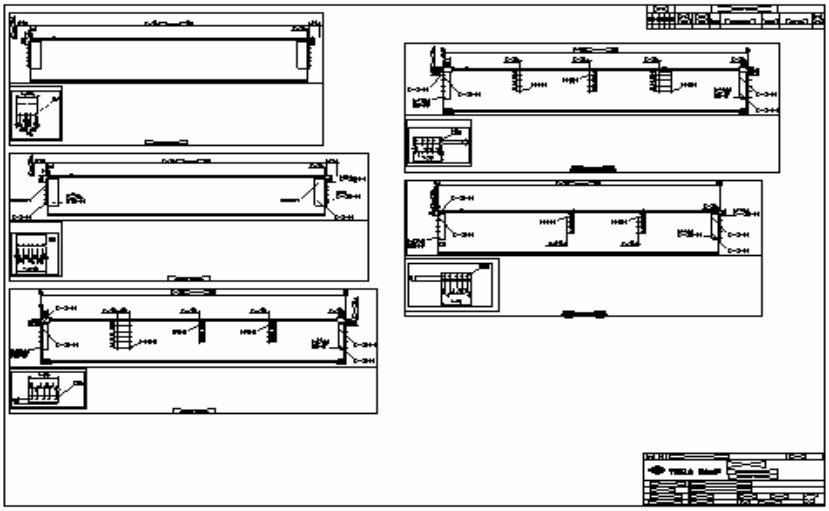
1. To arrange assemblies on the multidrawing, right click and select **Place views**.



2. To arrange the assemblies interactively:

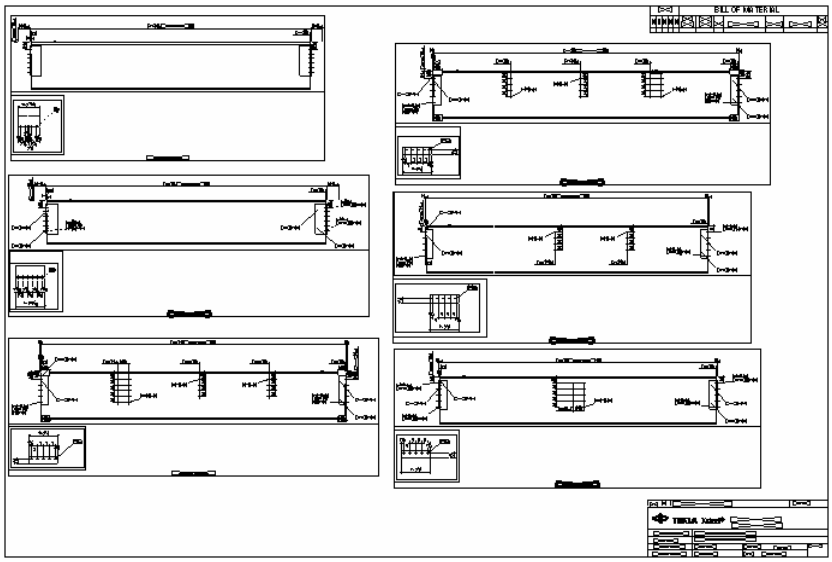
- Select outer blue border around an assembly
- Left pick the border
- Drag the assembly to the desired location

Your multi-drawing should look something like the one shown below (obviously different assembly drawing settings affect the appearance).



Add more assemblies to multi-drawing

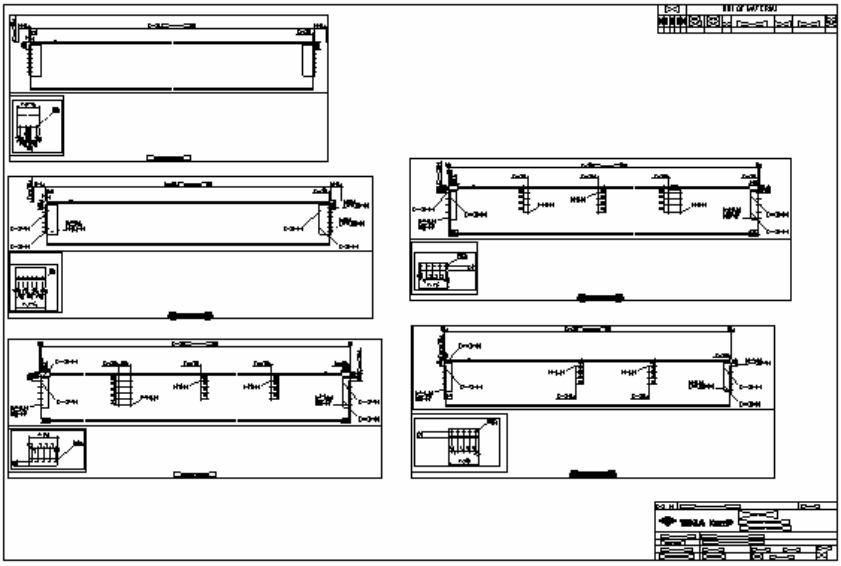
1. Highlight the next assembly on the drawing list and repeat the linking procedure.
2. After linking arrange the assemblies on the sheet again.



Remove the extra assemblies from the multi-drawing

It seems that we can't fit all 6 drawings on one sheet. The Bill of Material (top right hand corner) will be expanded and interfere with the beam view when drawing is re-opened. We need to remove 1 assembly from the sheet. As long as the drawing has been open all the time you can unlink the assemblies by using undo.

1. Click the undo button until the automatic and interactive arranging has been undone.
2. Click undo twice to undo the linking of one assembly, multinumbering is undone at the same time.

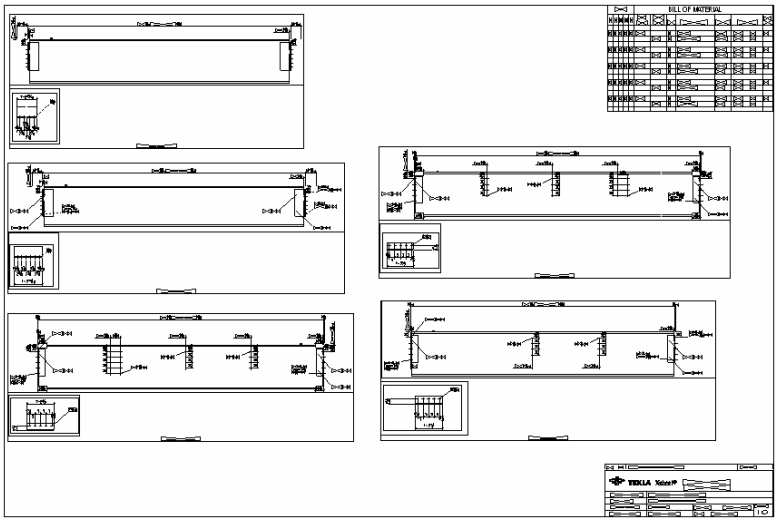


Re-open drawing

After you have arranged a suitable number of assemblies on the sheet, you should close and then re-open the drawing.

1. Highlight drawing on the drawing list and click **Open**.
2. Click the **Save** button.

The bill of material is always updated when the drawing is opened.



Once you close and save the drawing the undo log is cleared and the multinumber is set for those parts. The only way to get rid of the multinumber afterwards is to clear the numbering from selected parts (**Tools -> Numbering**).

The assembly view title e.g. 1 ~ BEAM ~Marked 101B1 can be changed in the batch file:

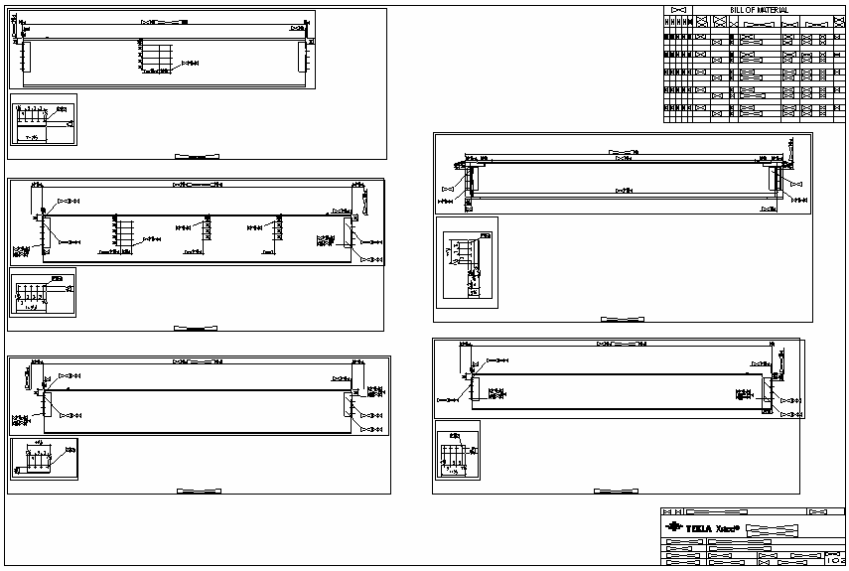
set XS_ASSEMBLY_DRAWING_VIEW_TITLE=

Take a look at the Tekla Structure help file for more information.

Create multi-drawing for the rest of the beam drawings

Repeat the procedure for the rest of the beam assembly drawings.

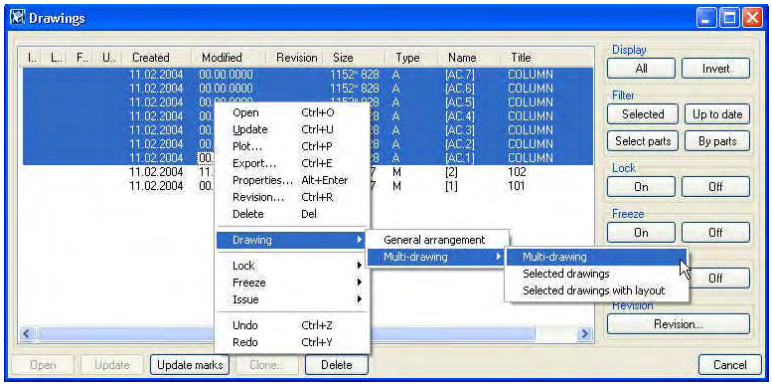
1. Create a new empty multi-drawing (**Drawing > Multi-drawing > Multi-drawing**). Note that the drawing name is automatically changed e.g. 101 > 102.
2. Open the drawing.
3. Select the rest of the beam assembly drawings.
4. Link the assemblies to the multi-drawing.
5. Arrange the assemblies.
6. Close and re-open the drawing to update the Bill of Material.



Automatic Multi-drawing Creation from Selected Drawings

Create multi-drawings out of the column drawings

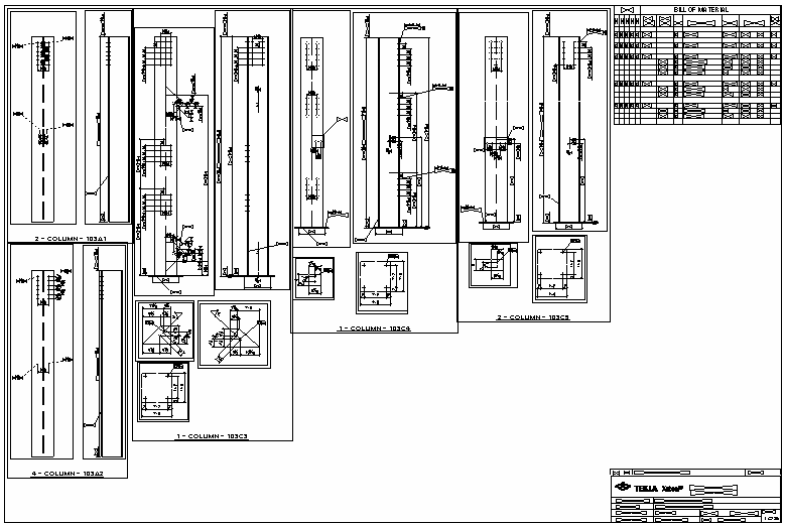
1. If necessary load TEKLA_multi, multi-drawing properties (**Properties -> Multi-drawing…**).
2. Highlight the Column drawings from the drawing list.
3. Right click at the top of the selected drawings and select: **Drawing > Multi-drawing > Selected drawings**.



You should be able to see that Tekla Structures creates a new multi-drawing and then starts linking the assembly drawings to it. Once the first sheet is full, it creates a new multi-drawing and starts the linking procedure again until all of the selected assemblies are linked to multi-drawings.

At the same time you can see the assembly marks changing on the drawing list according to your numbering setup e.g.103C1, 103C2… 104C1 etc.

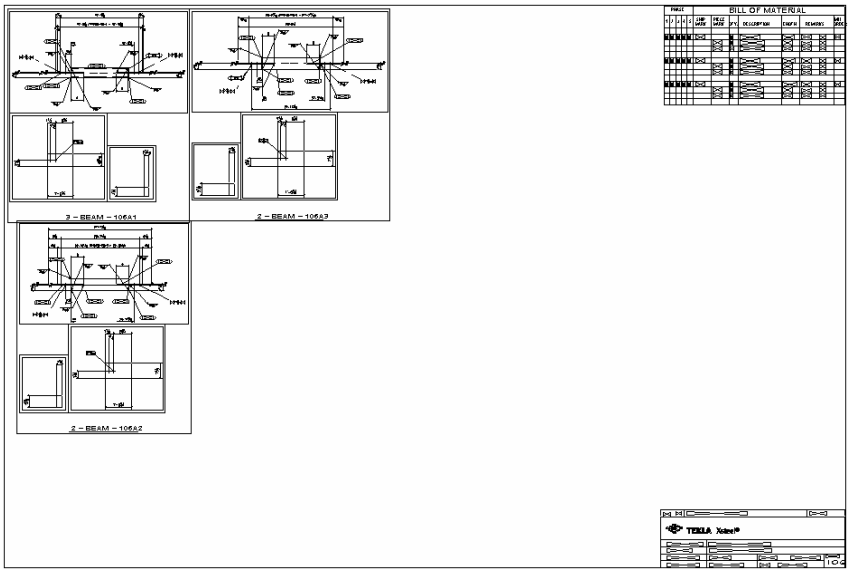
The number of multi-drawings needed depends on size of the assembly drawings. After the linking procedure is finished you can open the multi-drawings.



Create multi-drawings out of the bracing drawings

Highlight the Brace drawings in the drawing list.

1. Right click at the top of selected drawings and select: **Drawing > Multi-drawing > Selected drawings**.

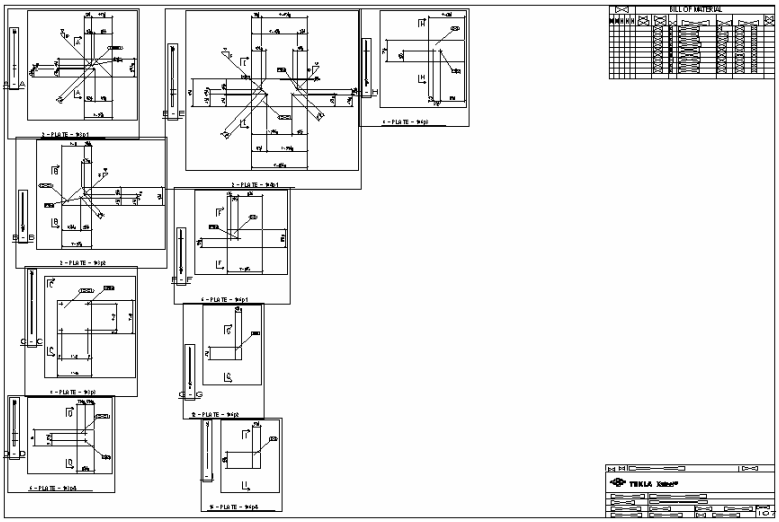


Create multi-drawings out of the single part plate drawings

Highlight the Plate drawings in the drawing list.

1. Right click at the top of the selected drawings and select: **Drawing > Multi-drawing > Selected drawings**.

, so if you assigned the multinumber during the linking of assembly drawings then the number should not be changed again.



14.3 Updating and revisions

For the most part updating and revision control is similar to that done in other drawings, so for more information take a look:

Help: Drawing > Getting started with drawings > Defining drawing revisions

Lesson 10.8 Principles of drawings

But because of the linking procedure and multinumbers there are a few issues that need a closer look.

Updating Multi-drawing

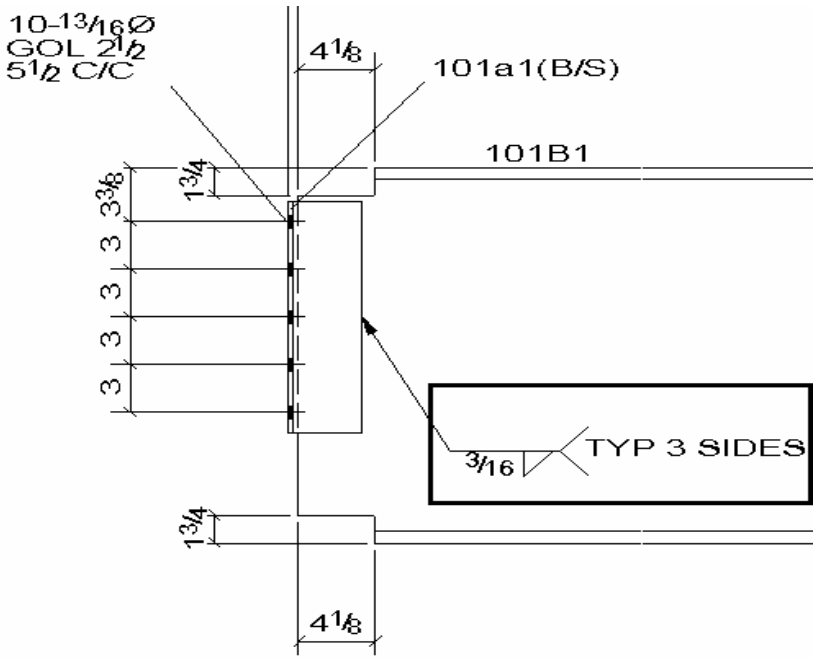
Changes to an assembly drawing are not automatically updated in the multi-drawing. Any saved modification to an assembly drawing requires the multi-drawing to be updated. This also means that if something changes in the model, which requires an assembly drawing to be updated, then it will also require the multi-drawing to be updated.

In the case where an assembly or single part mark changes so that a new drawing is cloned or needs to be created, the new drawing also needs to be linked to a multi-drawing.

If multinumbering is used modifications that affect numbering might also require re-linking of the assembly drawing. For example, if clip angles change so that they get a completely new number the assembly drawing needs to be deleted from multi-drawing. The assembly drawing must then be re-linked to the multi-drawing for the new clip angles to get multinumber.

Modifying an assembly drawing

Add a typical weld mark to an assembly drawing:



Close and save the drawing.

Update multi-drawing

You should see that there is "**D**" flag in front of the multi-drawing. This means that assembly or single part drawing that has been linked to the multi-drawings has been changed. You now need to update the multi-drawing.

Highlight the drawing and click **Update**.

Open the multi-drawing and you should now see the weld mark in the multi-drawing.

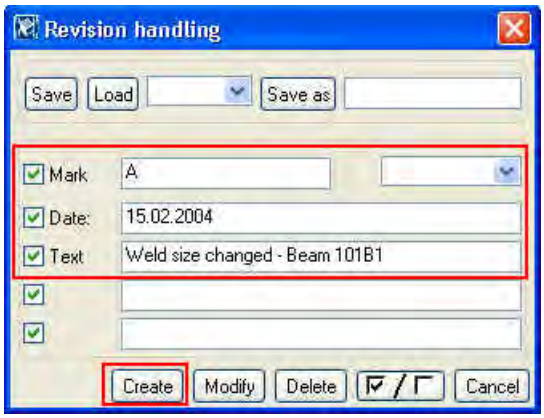
Revision Control

Create revision

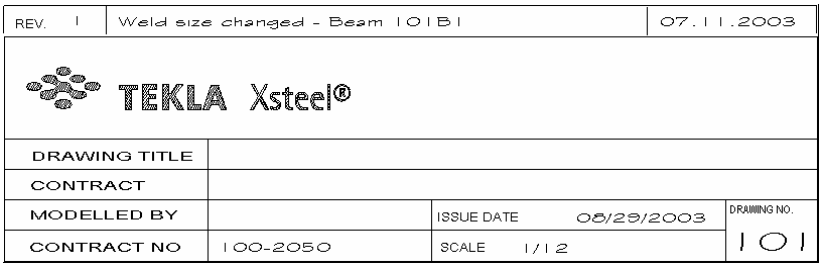
If you are sending multi-drawings to your clients then obviously you will need to add a revision mark to the multi-drawing. To add a revision mark:

1. Highlight the drawing on the list.
2. Click the **Revision…** button.
3. Add a revision mark, date and text to the dialog.
4. Click **Create**.

You can see that drawing was marked on the list as having revision A.



Open the drawing. You should see that the revision has also been added to you revision block.



Several drawings can share the same revision mark, date, and information. To attach the same revision information to several drawings simultaneously, select multiple drawings from the drawing list.

You can choose whether Tekla Structures shows the revision numbers or the revision marks in the drawing list. By default, revision numbers are shown. For more information, see the following links:
Help: Drawing > Getting started with drawings > Defining drawing revisions
Help: System > Files and folders > Startup batch file.

14.4 Multinumbering tutorial

The numbering section of the batch file is shown below for reference. The following is an explanation of what each line in the batch file controls and following that is a group of settings that will give you the desired part marks.

Numbering Section of Batch File

```
rem *** Numbering ----------------------------------------------
rem     Use standard numbering prefix in multi numbering
rem     for NONE or ASSEMBLIES or PARTS or ASSEMBLIES_AND_PARTS
rem     WARNING!!! DO NOT CHANGE THIS SWITCH DURING A PROJECT!!!
rem set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE

rem set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES_AND_PARTS
rem set XS_USE_NUMERIC_MULTI_NUMBERS_FOR=NONE
rem set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR=NONE
rem set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
rem     Use assembly position as part position for LOOSE_PART or MAIN_PART

rem set XS_SWITCH_MULTI_NUMBERS_FOR=NONE
rem set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS=abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=3
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=3
rem set XS_ALLOW_DRAWING_TO_MANY_MULTI_DRAWINGS=1
rem set XS_SWITCH_POS_NUMBERS_FOR=PARTS
```

```
rem set XS_PART_MULTI_NUMBER_FORMAT_STRING=
rem set XS_ASSEMBLY_MULTI_NUMBER_FORMAT_STRING=
```

Description of Batch File Lines

XS_USE_MULTI_NUMBERING_FOR=

When part and assembly numbering is based on drawing numbers, multinumbering is used. The environment variable XS_USE_MULTI_NUMBERING_FOR can be set to NONE, ASSEMBLIES, PARTS or ASSEMBLIES_AND_PARTS, defining whether the multinumbering will affect assemblies, parts or both. For example, if it is set and equal to ASSEMBLIES, we can achieve an assembly mark of something like:

10B1

10B2

10B3

If we have it set also to PARTS, we can achieve a part mark of something like:

10a1

10a2

10a3

Where **10** is the drawing number **a** is the Part prefix and **1** designates that it is the first part on the sheet.

For multinumbers to be assigned to parts, the single part views need to be turned on in the assembly drawing when the assembly drawing is linked to the multi-drawing.

XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR=

The environment variable XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR can be set to NONE, ASSEMBLIES, PARTS or ASSEMBLIES_AND_PARTS, defining whether the model prefix will affect the type of mark assemblies, parts or both get.

For example, if this variable is set to none, a column with that main part having an Assembly prefix C, when attached to a multi-drawing would get a mark of

A10

B10

C10

If this variable is set to ASSEMBLIES, this same column would get a mark of

AC10

BC10

CC10

XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=

Whether the part and assembly number prefixes influence the numbering of parts and assemblies in a multi-drawing can be defined with this environment variable. The four options are NONE, ASSEMBLIES, PARTS and ASSEMBLIES_AND_PARTS.

For three parts on the same sheet, two having an Assembly prefix of **C** and another one having a prefix of **B**. With this variable set to NONE, we would get the following marks:

AC10, BC10, CB10

1C10, 2C10, 3B10

With this variable set to ASSEMBLIES, we would get the following marks:

AC10, BC10, AB10

1C10, 2C10, 1B10

XS_USE_NUMERIC_MULTI_NUMBERS_FOR=

By setting the environment variable XS_USE_NUMERIC_MULTI_NUMBERS to ASSEMBLIES, PARTS or ASSEMBLIES_AND_PARTS, then numeric multinumbers are used for assemblies, parts or assemblies and parts, respectively.

As seen above the marks AC10, BC10, CB10 would become 1C10, 2C10, 3B10.

A -> 1

B -> 2

C -> 3

XS_USE_ASSEMBLY_NUMBER_FOR=

Note that each piece of an assembly has its own individual mark as well as the assembly mark that it is attached to. Main part and loose parts (secondary parts of the assembly) that make up an assembly can however take the assembly mark if this variable is set appropriately.

Options are **MAIN_PART** or **LOOSE_PART**.

This essentially means that the Part Number series in the part dialog box will be ignored.

XS_SWITCH_MULTI_NUMBERS_FOR=

The order of the multi-drawing number and part or assembly number in the multinumber can be set with the environment variable XS_SWITCH_MULTI_NUMBERS_FOR. The four options are: NONE, ASSEMBLIES, PARTS and ASSEMBLIES_AND_PARTS.

For example, if the line is set equal to ASSEMBLIES, then **AC10, BC10, CB10** would become: **10AC, 10BC, 10CB**.

XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=

This line defines the valid characters available for use when designating assembly marks. If the line

XS_USE_NUMERIC_MULTI_NUMBERS_FOR= is set equal to ASSEMBLIES, then this line is ignored.

Assembly marks will be made **AC10, BC10**… **XC10** then **AAC10, ABC10**… and so on. Make certain to exclude any characters you wish to not use.

XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=

If not using numeric multinumbers, this line specifies the minimum amount of characters to use when assigning an assembly mark. By default this number is two, which would produce marks like those above. If set to 2 then the same assemblies would receive marks like: **AAC10, ABC10, ACC10**…

XS_ALLOW_DRAWING_TO_MANY_MULTI_DRAWINGS=

This environment variable is used for defining whether the drawings already included in a multi-drawing are also to be included in a new multi-drawing that is being created. If any value is defined for this environment variable it is possible to include the same drawings more than one multi-drawing. By default, a certain drawing can only be included in one multi-drawing.

`XS_SWITCH_POS_NUMBERS_FOR=`

This variable swaps the prefix defined in the Tekla Structure assembly and/or part mark to become a suffix **(A1 > 1A)**. The options are NONE, PARTS, ASSEMBLIES, ASSEMBLIES_AND_PARTS. This setting is only available for use with assembly drawings.

Changing the order of the multinumber content is easily done by switching order of elements with following batch file variables:

```
rem set XS_PART_MULTI_NUMBER_FORMAT_STRING=
%%PART_PREFIX%%
%%PART_MULTI_DRAWING_POS%%
%%PART_MULTI_DRAWING_NUMBER%%
rem set XS_PART_MULTI_NUMBER_FORMAT_STRING=
%%ASSEMBLY_PREFIX%%
%%ASSEMBLY_MULTI_DRAWING_POS%%
%%ASSEMBLY_MULTI_DRAWING_NUMBER%%
```

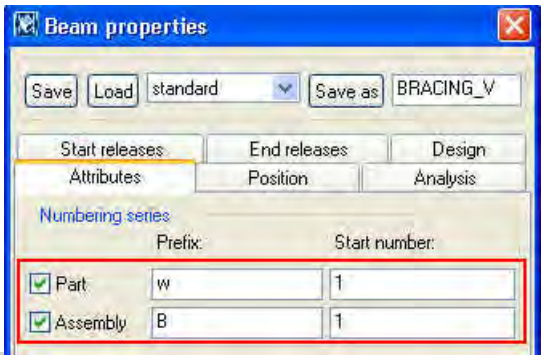
Note that anything which is outside %% will always be output, so you can include for instance parentheses to the mark e.g. 1B(101).

Settings for Assembly Numbers

Standard marks for assemblies when not using multi-drawings and multinumbering. Using Prefixes and start numbers for a range of types: B1, B2, B3… C1, C2, C3. Beams using prefix **B** and start number **1** will continue as B1, B2, B3 etc. The user can determine different prefixes for different parts if required – i.e. **C** for column.

Different start numbers enable an alternative way of phasing – i.e. B501 Care must be taken not to overlap numbers if this method is used (e.g. 521 beams in the series B1 would overlap with beams in series B501! – Tekla Structure does warn the user if this happens).

Set up the Prefix and Start number in part dialog box:



Using Multi-Drawings and Enabling the Use of Multinumbers

`Assembly Marks – A1, B1, C1…`

Set up the following Environment Variables:

`set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES`

```
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR=NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR=NONE
set XS_SWITCH_MULTI_NUMBERS_FOR=NONE
rem set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=3
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – 1A, 1B, 1C…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR=NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR=NONE
set XS_SWITCH_MULTI_NUMBERS_FOR= ASSEMBLIES
rem set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=3
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – 101B1, 101B2, 101B3, 101C4, 101C5…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_SWITCH_MULTI_NUMBERS_FOR= ASSEMBLIES
rem set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=3
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – 101B1, 101B2, 101B3, 101C1, 101C2…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= ASSEMBLIES
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_SWITCH_MULTI_NUMBERS_FOR= ASSEMBLIES
rem set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=3
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – 1B101, 2B101, 3B101, 4C101, 5C101…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_SWITCH_MULTI_NUMBERS_FOR= NONE
rem set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=3
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – 1B101, 2B101, 3B101, 1C101, 2C101…

Set up the following Environment Variables

```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= ASSEMBLIES
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_SWITCH_MULTI_NUMBERS_FOR= NONE
rem set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
```

```
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=3
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – 101BA, 101B2, 101BC, 101CD, 101CF…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_SWITCH_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=2
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – 101BA, 101B2, 101BC, 101CA, 101CB…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= ASSEMBLIES
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_SWITCH_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=2
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – AB101, BB101, CB101, AC101, BC101…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= ASSEMBLIES
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_SWITCH_MULTI_NUMBERS_FOR= NONE
set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=2
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Assembly Marks – AB101, BB101, CB101, DC101, FC101…

Set up the following Environment Variables:

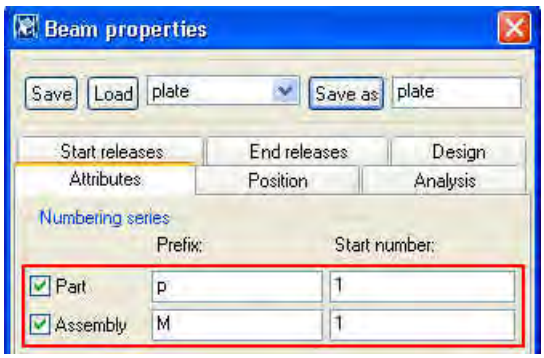
```
set XS_USE_MULTI_NUMBERING_FOR=ASSEMBLIES
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= ASSEMBLIES
set XS_SWITCH_MULTI_NUMBERS_FOR= NONE
set XS_VALID_CHARS_FOR_ASSEMBLY_MULTI_NUMBERS=ABCDFGHJKMNPRSTVWX
rem set XS_MIN_NUMBER_OF_ASSEMBLY_MULTI_CHARACTERS=2
set XS_USE_ASSEMBLY_NUMBER_FOR=MAIN_PART
```

Settings for Secondary Part Numbers

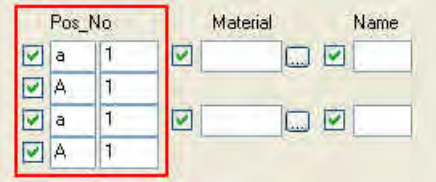
Standard marks on secondary parts when not using multi-drawings and multinumbering. Using Prefixes and start numbers for a range of types: **a1**, **a2**, **a3…**, **p1**, **p2**, **p3**… Plates using prefix **p** and start number **1**, will continue as **p1, p2**, **p3**, etc. The user can determine different prefixes for different parts if required, i.e. **a** for angle.

Different start numbers enable an alternative way of phasing – i.e. **p501** Care must be taken not to overlap numbers if this method is used (521 beams in the series **p1** would overlap with beams in series **p501**! – Tekla Structure does warn the user if this happens).

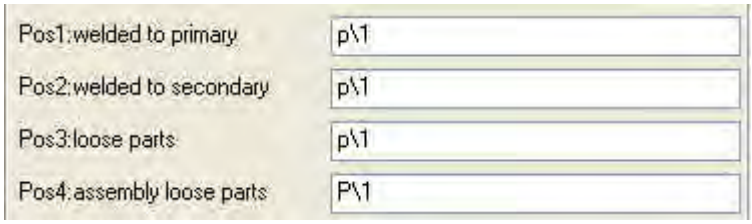
Set up Prefix and Start numbers in the part properties dialog box:



Set up the Prefix and Start number in a typical joint dialog box **Parts** page:



The Prefix and Start number will be taken from the **Options** dialog when connection dialog fields are left empty (**Setup > Options…**).



Remember, for multinumbers to be assigned to parts, the single part views need to be turned on in the assembly drawing when the assembly drawing is linked to the multi-drawing.

Because this part of this document is referring to secondary part marks, the following batch file lines are shown as set =PARTS. Depending on the format of the Assembly marks these lines may need to be set to ASSEMBLIES_AND_PARTS (see above). Those lines shown as set =NONE maybe likewise effected by the Assembly marks.

Part Marks – a1, b1, c1…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR=NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR=NONE
set XS_SWITCH_MULTI_NUMBERS_FOR=NONE
rem set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=3
```

Part Marks – 1a, 1b, 1c…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR=NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR=NONE
set XS_SWITCH_MULTI_NUMBERS_FOR= PARTS
rem set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=3
```

Part Marks – 101a1, 101a2, 101a3, 101p4, 101p5…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR=PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR=PARTS
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= PARTS
rem set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=3
```

Part Marks – 101a1, 101a2, 101a3, 101p1, 101p2…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR= PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= PARTS
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR=PARTS
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= PARTS
rem set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=3
```

Part Marks – 1a101, 2a101, 3a101, 4p101, 5p101…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR= PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= PARTS
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= NONE
rem set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=3
```

Part Marks – 1a101, 2a101, 3a101, 1p101, 2p101…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR= PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= PARTS
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= PARTS
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= NONE
rem set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=3
```

Part Marks – 101aa, 101ab, 101ac, 101pd, 101pf…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR= PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR=NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= PARTS
set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
```

```
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=2
```

Part Marks – 101aa, 101ab, 101ac, 101pa, 101pb…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR= PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= PARTS
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= PARTS
set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=2
```

Part Marks – aa101, ba101, ca101, ap101, bp101…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR= PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= PARTS
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= NONE
set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=2
```

Part Marks – aa101, ba101, ca101, pd101, pf101…

Set up the following Environment Variables:

```
set XS_USE_MULTI_NUMBERING_FOR= PARTS
set XS_MODEL_PREFIX_INFLUENCES_MULTI_NUMBERING_FOR= NONE
set XS_USE_NUMERIC_MULTI_NUMBERS_FOR= NONE
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= NONE
set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS= abcdfghjkmnprstvwx
rem set XS_MIN_NUMBER_OF_PART_MULTI_CHARACTERS=2
```

Part Marks – aa, ab, ac, pa, pb…

Set up the following Environment Variables:

```
set XS_USE_MODEL_PREFIX_IN_MULTI_NUMBERS_FOR= PARTS
set XS_SWITCH_MULTI_NUMBERS_FOR= PARTS
```

Part Marks – a, b, c, d, f…

Set up the following Environment Variables:

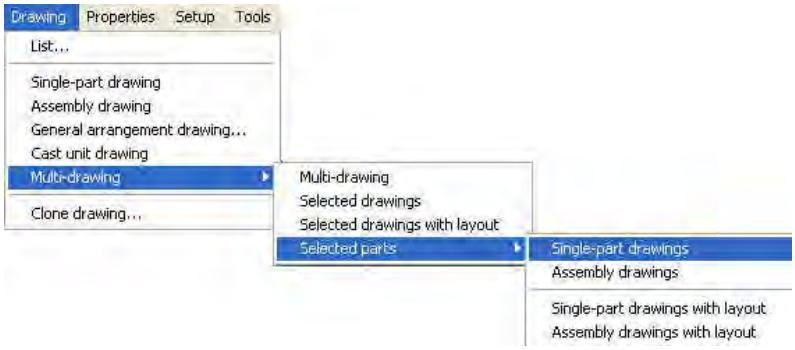
```
set XS_USE_MULTI_NUMBERING_FOR=PARTS
set XS_VALID_CHARS_FOR_PART_MULTI_NUMBERS=abcdfghjkmnprstvwx
```

=> To achieve strictly alpha characters the following steps must be followed.

When entering secondary parts into the model. The part prefix needs to be blank and the start number needs to be 1. This also applies when using the system joints. Make certain the field under the label Pos is blank and the field under No is 1. This will produce part marks that are strictly numeric. i.e. 1, 2, 3…

Create or load multi-drawing properties that specify an extremely large sheet so that it would be impossible to create enough single parts drawings to run out of room to place them on the multi-drawing. Also, **VERY IMPORTANT!** The **NAME** of the drawing must be blank. This can only be accomplished by placing a space in the **NAME** field.

Next, select all of your secondary parts and create a multi-drawing of the selected parts with single part drawings. From the pull-down menu:



As the single part drawings are linked to the multi-drawing the part marks change from 1, 2, 3 to a, b, c.

Note that if more than one multi-drawing is created (because there is not enough room on the multi-drawing to place any more parts) the next drawing will get **1** for a name and then the parts will have marks **1a**, **1b**, **1c**…

If more secondary parts are added after the original multi-drawing is made single part drawings of those pieces need to be made and then they need to be linked to the original multi-drawing that has no name.