DELTABEAMTOOL FOR AUTOCAD
User Manual

Contents

DeltabeamTool – User Manual

DeltabeamTool works only in AutoCAD, not in AutoCAD LT. However the file created with DeltabeamTool can be opened with AutoCAD LT and the DELTABEAMs even modified as explained later in this document, but after that the file has to be opened with AutoCAD in order to be able to update the DELTABEAM schedules and single beam drawings.
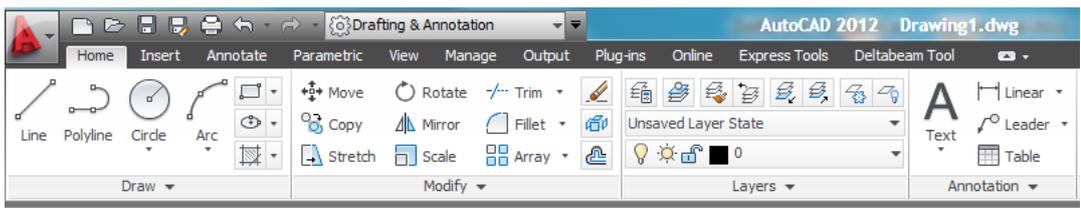
With the DeltabeamTool the user can:
1. Draw DELTABEAM in 2D from directions of the three main axes of the DELTABEAM:
    - side view
    - top view
    - end view (cross-section)

    NOTE! This tool is suitable to produce general lay-out and elevations (cross-section through the building). For detailed cross-section drawings is recommended to use DELTABEAM cross-section blocks available in Peikko web site.
2. Add or export DELTABEAM schedule of the DELTABEAMs in the drawing.
3. Export single beam drawing for each DELTABEAM in the drawing.

DeltabeamTool also manages the beam tags, the beam 'numbers', which are individual for each DELTABEAM in the drawing. The prefix and number format can be determined.

After the installation the AutoCAD ribbon should look like this:

NOTE!   DeltabeamTool can be used only in Ribbon style interface, not in AutoCAD Classic.

The user can switch between AutoCAD Classic and Ribbon interfaces by clicking on pull down menu in the Quick Access Toolbar – see figure on right.

To view the Ribbon interface choose 'Drafting & Annotation' from the menu. If DeltabeamTool tab is not visible it may require restart of the AutoCAD. The selected interface style will be saved as default and AutoCAD opens to that interface style next time AutoCAD will be started.
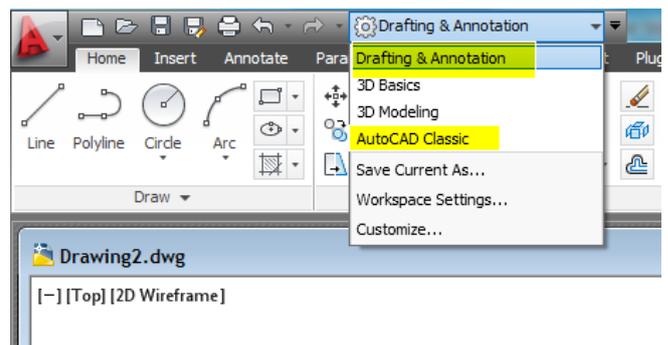
DeltabeamTool is far right in the ribbon menu titles, after picking it:
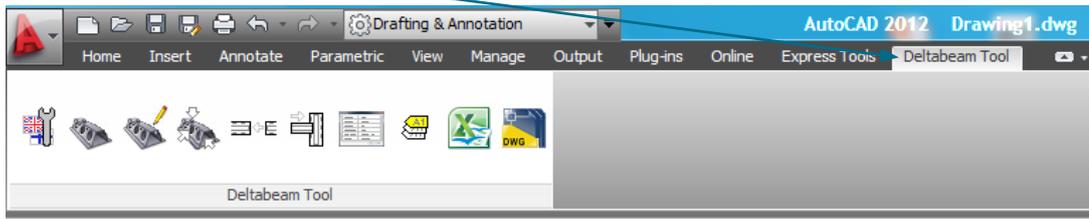
From right to left the functions are:

1. Settings
2. Create new DELTABEAM
3. Modify DELTABEAM
4. Create new view of existing DELTABEAM
5. Create Gerber connection
6. Create Side connection
7. DELTABEAM project information
8. Manage DELTABEAM tags
9. Add or export DELTABEAM schedule
10. Create DELTABEAM drawings (single beam drawings)

In the following all ten functions are described more in detail. Numbering of the chapters follows numbering of the list above.
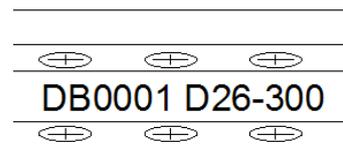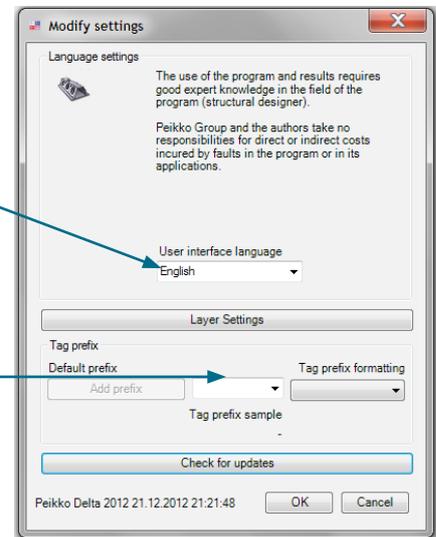
1. Settings

With Settings tool the user can change the interface language, manage the layers used by DeltabeamTool and also modify the beam tag settings.
The interface language can be change by selecting appropriate language from the "User interface language" list. This selection effects to the language in the DELTABEAM schedules but not in the single beam drawings.

The beam tag consists of max 9 characters, the tag is in format: ABCDEF1234. With "Tag prefix formatting" can be determined how many number characters there are in the tag, it can vary between 1...4. In the input box a fixed prefix in the tag can be determined.

If determining the prefix to be 'DB' and choosing '0001' from the formatting list, the tag of the first DELTABEAM drawn will be 'DB0001', of the second 'DB0002' and so on. The number part of the tag is a running number. The beam type is written after the tag, it is not part of the tag.

2. Create new DELTABEAM

To create a new DELTABEAM there are few settings to be determined first, see figure on right. The effect of the settings can be seen in the graphics windows of the interface.

- Beam type
  - Metric or Imperial
  - D or DR type
  - Beam type
- Projection
  - side view
  - plan view
  - end view
- Tag
  - the text box shows the next tag
  - it can be modified in the text box
- Length
  - the length can be set to a fixed value in the text box by first checking the check box
     OR
  - giving dynamically the length on the screen by pointing both start and end points

After all the settings are done either

- Pick "OK" button to add new DELTABEAM to the drawing
- Pick "Gerber" button to join the new DELTABEAM to an existing one with the Gerber joint

To specify the parameters of the DELTABEAM more in detail pick the "Details" button, see figure below. See the effects of the detailed settings in the graphic windows.

- Rise:
  - how many mm the end of the beam is higher/lower than at the start
- Rotation around x-axis:
  - rotation angle
- Hole offset left/right:
  - distance to the centre of the first web hole from the start of the DELTABEAM
- Angle at start/end
  - angle of the DELTABEAM end in horizontal plane
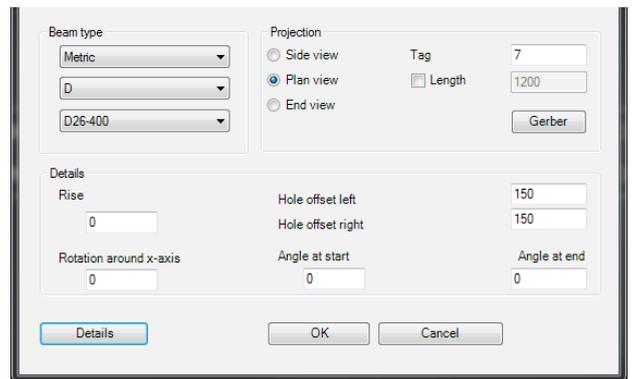
3. Modify DELTABEAM

The user is prompted to pick a beam for modification. After that similar window opens as when adding a new DELTABEAM but the parameters are read from the picked beam and shown in the interface for modification.

After inputting the new value press the OK button and the modifications will be applied.

4. Create new view of existing DELTABEAM

The user is prompted to pick a beam from which the new projection will be created. The function keeps track which projections exist already and allows to add only the ones that does not exist yet.

If there are both side and top projections of a DELTABEAM the correct way to modify the length of that beam so that both projections are up to date is to use 'Modify DELTABEAM' function – see the previous chapter (no. 3).

If the length of a projection would be changed with the handles the other projection will not keep up with the modification.

NOTE! The created projections and the beam from where they are created have the same beam tag.
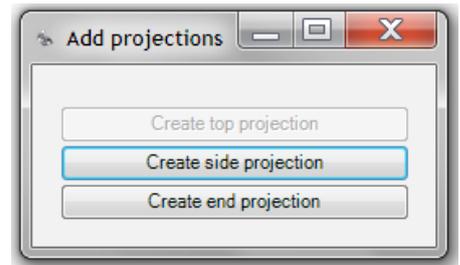
5. Create Gerber connection

With this function two existing DELTABEAMs can be connected with a Gerber connection. As sign of the Gerber connection a 'g' will be written at connected ends of the connected DELTABEAMs. Information of the Gerber connection will be visible (lowercase letter 'g') also in single beam drawings of both of the connected DELTABEAMs.

The user is prompted to draw a reference line to which the DELTABEAMs to be connected will be extended and then pick the DELTABEAMs to be connected. The ends of the connected DELTABEAMs will follow the angle of the line drawn by the user. Single DELTABEAMs can be also trimmed or extended with this function. When trimming always the shorter portion will be trimmed away. The Gerber sign 'g' will be created also in this case and it should be removed by opening properties window of the DELTABEAM in question and deleting the content.
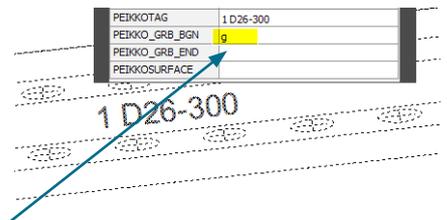
**NOTE!**   DELTABEAMs can be connected with the Gerber connection to existing DELTABEAMs also with 'Create new DELTABEAM' function.

6. Create Side connection

With this function the user can connect two existing DELTABEAMs with a Side connection.
Pick first the primary DELTABEAM and then the secondary DELTABEAM. The secondary
DELTABEAM will be extended/cut so that its end is at correct distance to the primary DELTABEAM.
The primary DELTABEAM will be marked with the location of the Side connection in the single
beam drawing.

The secondary beam can be moved along the primary beam – not rotated – if just the line on
the primary beam indicating the location of the Side connection will be moved together with the
secondary beam. In the figure left the line did not move with the secondary beam → integrity is
lost.
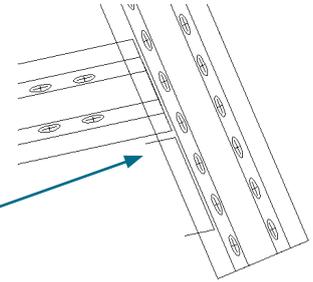
7. DELTABEAM project information

With the function DELTABEAM project information can be added and modified for
the current drawing. The information added here is transferred automatically to the
schedules and the single beam drawings.

The information can't be exported or copied to other drawings.
This function can be accessed also in DELTABEAM schedules function.

The user can modify the surface treatment information also individually for each
beam by double clicking the text on the beam.

New window opens where the surface treatment can be modified by
inputting a value on row 'PEIKKOSURFACE'; if the value is empty, the
value in the project information will be used. This modified value will
be shown in the DELTABEAM schedules also.
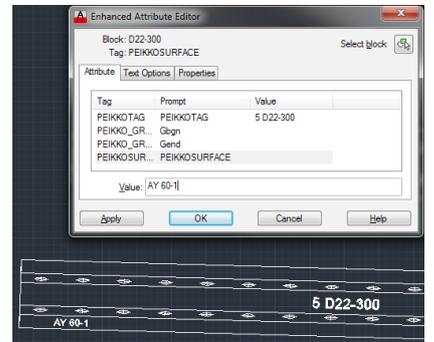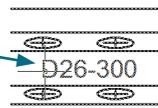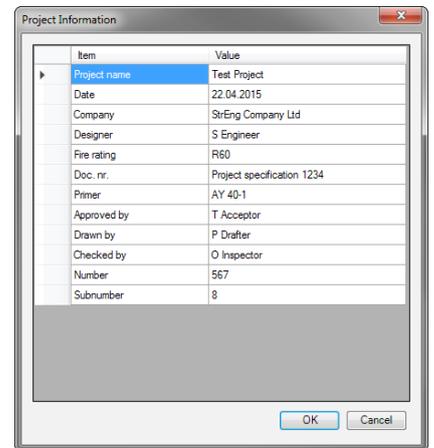
8. Manage DELTABEAM tags

With the function can be checked if there is the same tag for two or more
DELTABEAMs and also change the tags.

If there are similar tags they are shown with red highlight as in smaller figure
on right. The window opens so that all the highlighted rows are visible.

If there are no similar tags the interface opens as the figure far right.

Every DELTABEAM should have its own identification code i.e. beam tag. The
tag can be changed by choosing first a projection. After choosing a projection
the current tag is shown in the box in top hand corner. New free tag can be
searched by pressing the plus button. The tag can be finally changed by
pressing the right side button.
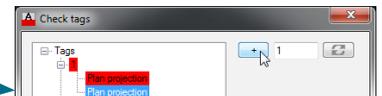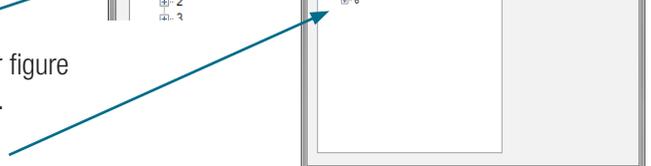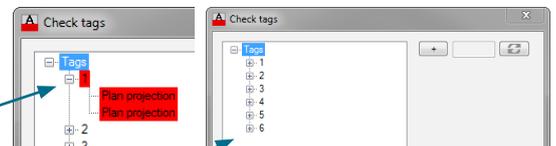
Automatic tag function is not available i.e. so that the application would run new tags for the whole project.

NOTE! The user can modify the beam tag also individually for each DELTABEAM by double clicking the text on the beam. The beam tag is located in front of the DELTABEAM profile.
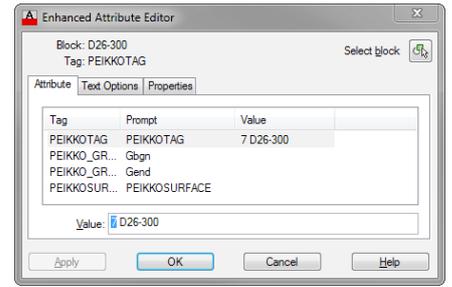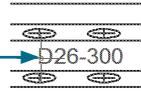
D26-300

9. Add or export DELTABEAM schedule

With the function the DELTABEAM schedule can be either created into the current drawing as a table or exported to a spreadsheet file.

Neither of them is automatically updated if changes have been made to the main drawing. In that case the existing one should be deleted and a new one built with this function.

The information in the window is read from the project information and from the main drawing. The information in view can't be modified.

There are three functions in the window.
- Modify project information, the icon at top right corner
- Create table into the drawing
- Export schedule to a spreadsheet
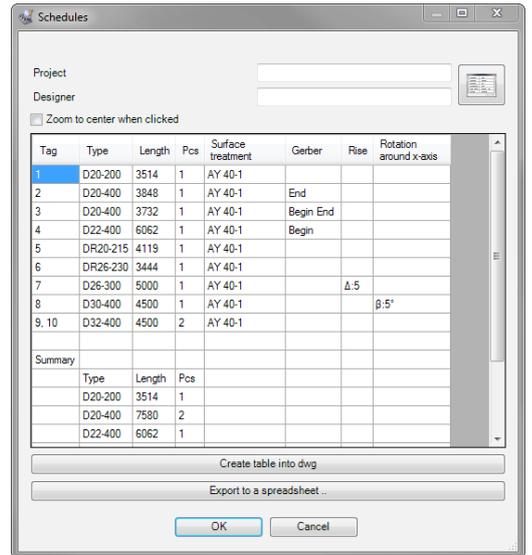
When creating table into the drawing just an insertion point is asked to pick and the table is inserted after OK button is picked.
See an example below.

				PEIKKO DELTABEAM LISTING				
Tag	Type	Length	Pcs	Surface treatment	Gerber	Rise	Rotation around x-axis	
1	D20-200	3514	1	AY 40-1				
2	D20-400	3848	1	AY 40-1	End			
3	D20-400	3732	1	AY 40-1	Begin End			
4	D22-400	6062	1	AY 40-1	Begin			
5	DR20-215	4119	1	AY 40-1				
6	DR26-230	3444	1	AY 40-1				
7	D26-300	5000	1	AY 40-1		Δ:5		
8	D30-400	4500	1	AY 40-1			β:5°	
9, 10	D32-400	4500	2	AY 40-1				
Summary								
	Type	Length	Pcs					
	D20-200	3514	1					
	D20-400	7580	2					
	D22-400	6062	1					
	DR20-215	4119	1					
	DR26-230	3444	1					
	D26-300	5000	1					
	D30-400	4500	1					
	D32-400	9000	2					

When exporting the schedule into a spreadsheet file a destination folder is asked to choose. After that a message is shown if the file could be created; the format is 'ods', which can be opened with various spreadsheet software's. Finally the created spreadsheet file will be opened for a view.

**NOTE!** In the table identical DELTABEAMs are listed in the same row.

10. Create DELTABEAM drawings

This function exports single beam drawings for each DELTABEAM in the drawing. The main parameters are dimensions, beam type etc. The detailed information should be added manually in each beam drawing.

The information or modifications added to the DELTABEAMs in the main drawing with AutoCAD functions is not exported.

The DELTABEAM drawings are created in a single file. Before saving the created file an output file is selected and a name for the file is given. Updating of an existing file is also possible.

If no DELTABEAMs are selected from the main drawing the created file includes all DELTABEAMs from the main drawing. A file can be also created from certain beams by first choosing the DELTABEAMs before creating the beam drawings. Before the select output file window opens up the software asks from the user if the file is created only from the selected beams or from all DELTABEAMs.
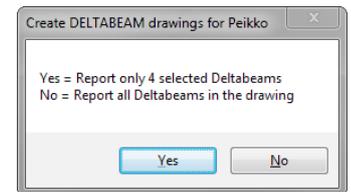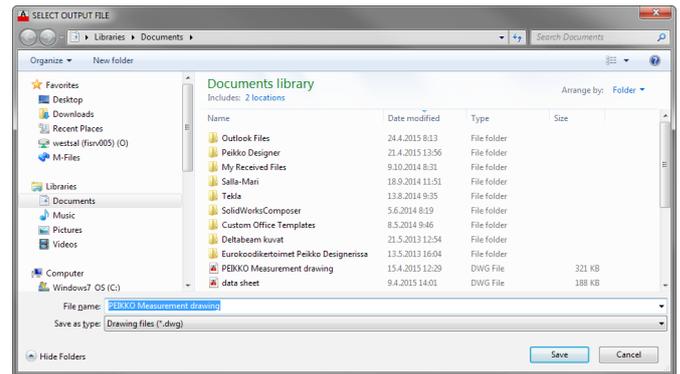
DETAILING

NOTE! The DELTABEAMs created with the DeltabeamTool are dynamic blocks. They should be modified only with the methods described earlier in this manual. If the dynamic block should be exploded and then modified (trim, extend ...), the modifications will not be transferred to the single beam drawings. In fact if a dynamic block would be exploded it will not be recognised anymore by the application as a DELTABEAM and therefore the single beam drawing can't be created.

Any detailing should be done with AutoCAD commands in the single beam drawing as it is 2D drawing.
The detailing in the single beam drawings can be done also with AutoCAD LT.

Detailing means for instance:
- bolt holes
- formwork plates
- cut offs in the ledges
- etc.

Modification of the beam length, location of the web holes, angle of the ends, etc. should be done in the plan drawing by using the dynamic block handles. If they would be modified in the single beam drawing the plan drawing will not be revised according to the changes.

11. Modifying DELTABEAM dynamic blocks

The DELTABEAMs drawn are AutoCAD dynamic blocks, which mean that DELTABEAMs can be modified also with the handles in combination with AutoCAD commands, like Osnap. For instance the length, angle at the ends, stating point of the web holes and number of them can be changed.

All the modifications made with the handles will be visible in the schedules and single beam drawings produced after the modifications.

All the handles can be viewed by picking the DELTABEAM.
- To activate a handle pick it.
- To modify the DELTABEAM drag the activated handle to a new position and pick it.
  All AutoCAD methods can be used, for instance the object snaps.

See figure and explanations for referred handles below.

1.   Change the end angle of the DELTABEAM.
2.   Change the number of the web holes.
3.   Change the length of the DELTABEAM.
4.   Change tilt of the end plate.
5.   Change the number of the web holes.
6.   Change the location of the web hole group.

     a.   the web hole should not be moved too close to the end plate (please see DELTABEAM Technical Manual)

7.   Change the location of the web hole group.
8.   Change the end angle of the DELTABEAM.
9.   Change the number of the web holes.
10.   Change the length of the DELTABEAM.
11.   Change tilt of the end plate.
12.   Change the number of the web holes.

The side view has similar handles.

To modify the DELTABEAM a handle has to be selected, after that one can:
- use basic 'Object Snap' tools directly to move the handle to a new location
- use first 'Base point' prompt to choose another point than the handle as a reference point
  - this is useful when locating a web hole to a HC unit joint when it is not the first web hole

NOTE! AutoCAD has a reference point tool and the command for the tool is called TRA. The command TRA can be used for example before selecting the start point when creating a new DELTABEAM.

12. Modifying DELTABEAM drawings

In the DELTABEAM drawings file all DELTABEAMs are drawn to the modelling side in their true scale. Each DELTABEAM drawing is shown in its own layout in the file. The labels in the drawings are filled with default Technical fabrication requirements information and with the given project information.

Detailing to the DELTABEAMs (like adding dimension lines, bolt holes, formwork plates or cut offs in the ledges, etc.) is done in the modelling side.

The fields of the Technical fabrication requirements label (excluding the shade) can be modified in the layout by double clicking the label or the text. The change is then made to that one DELTABEAM layout not for all layouts in the file. This feature is helpful if for example the execution class of some DELTABEAM differs from the default value or if some beam has a different fire rating than the others.

The detailing made in the modelling side and the manually made changes to the Technical fabrication requirements label will stay in memory after the file is saved. If the file is later updated these manually made changes will stay in the memory while at the same time all other changes are saved to the file.

The manually changed fields can be emptied and the file can be saved. After next update the empty fields in the file are automatically filled with the default values and with the given project information.

If you have any questions or proposals for further development please send a message to address components@peikko.com.

UPDATE TO A NEW VERSION

In the function 'Modify Settings' there is a tool for the user to check if a new version of the DeltabeamTool is available – it requires an internet connection.

If a new version is available following message will be viewed. The user can choose if he wants to update the version or not, or even only to download the installation file for later installation.
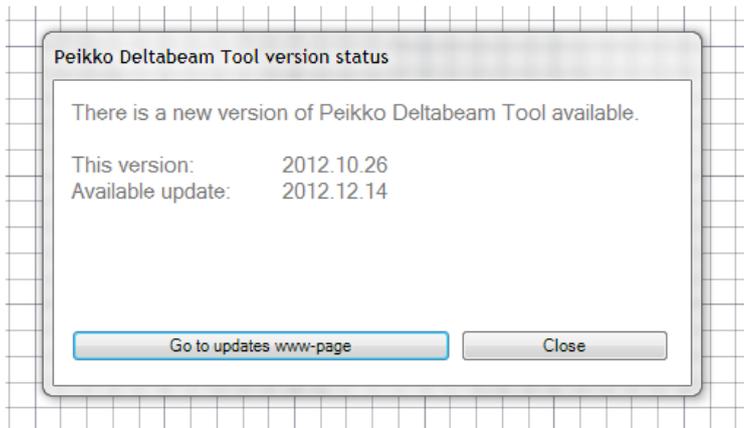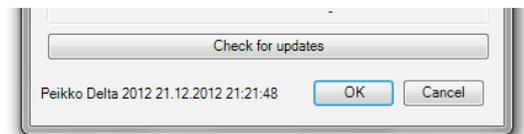
NOTE!   Before updating the previous version should be removed with Windows Control Panel uninstallation tool.

If the current version is up to date following message will be viewed.