

**CAD/CAM System B-Ship +**

**Version 5.0**

**Module Mdet**

**Formation of ship case designs and elements**

**BSHIP.00006.005-2020**

**User manual**

**Sheets 101**

**Saint Petersburg**

**2020**

## ANNOTATION

This document is a concise guide for user to run with module Mdet of B-Ship+ system.

The B-Ship+ system is informationally compatible with the following systems: Ritm-Ship(AutoCAD), R-Ship+ (AutoCAD) and N-Ship+ (nanoCAD).

The document is designed for the specialists serving to provide users who work in BricsCAD and B-Ship+ for construction and technological preparation of shiphull manufacturing.

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Saint Petersburg, Russian Federation.

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## TERMS AND AGREEMENTS

The term "select object" used in the manual means requiring you to select an object in a model using a mouse device - set the mouse pointer to the object and click with the left button.

Choosing with a keyboard: place a cursor on an object with arrow keys and press the input (Enter) key.

The designation ^C means simultaneous pressing of Ctrl (Control) and C keys.

This guide uses the following font agreements:

- directory names, file names and file types, graphic redactor requests text in module commands are *italicized*;
- The module names and the **B-Ship** system component, menu items, button names and key, command names in the text of the dialogue with the BricsCAD graphic editor are **bold**;
- the names of the layers and the names of the named objects are typed TO THE NOTE.
- The text of messages to the graphics editor's requests in the command line described is [dark blue](#).

For a brevity further in the text, the **B-Ship+** system will be called **B-Ship**.

## 1. MODULE DESIGNATION

### 1.1. Module appointment

The **Mdet** module is designed to work with models of ship structures of three-dimensional model hull and on its basis the formation of sheet and profile parts of the ship's hull and their processing technology. A wide range of service features and integrated full-on communication with **B-Ship** modules.

Once the **B-Ship** software is installed, the **Mdet** module is ready to perform.

The module operates online.

There are panel menus for all of the main **Mdet** commands.

All module commands are involved with contextual menus (on the right mouse key).

**Warning:** All windows contain a window folding/unwrap button for convenience when working.

## 2. SCHEME OF USING MODULE

### 2.1. The beginning of work with the module

The **B-Ship** system has falling menus, each containing commands of one module. The tape is not used. The **Mdet** module corresponds to a falling menu, whose full name consists of **MDET** and a two-character suffix denoting the current localization language: ru (Russian). However for brevity in the document instead of the name **MDETru** uses the name **MDET**.

**Note.** The **MDET** menu is optional in relation to the main menu default.cui of the BricsCAD system. That's why the **MDET menu can't be downloaded as the main one!**

Otherwise, the user loses access to the main commands of the graphics editor.

The **MDET** menu is downloaded as an additional menu using the **MENULOAD** command input from the keyboard, or using the BricsCAD **Service menu item to download the app's menu**. The **Additional Menu Files dialog** will open (Figure 1):

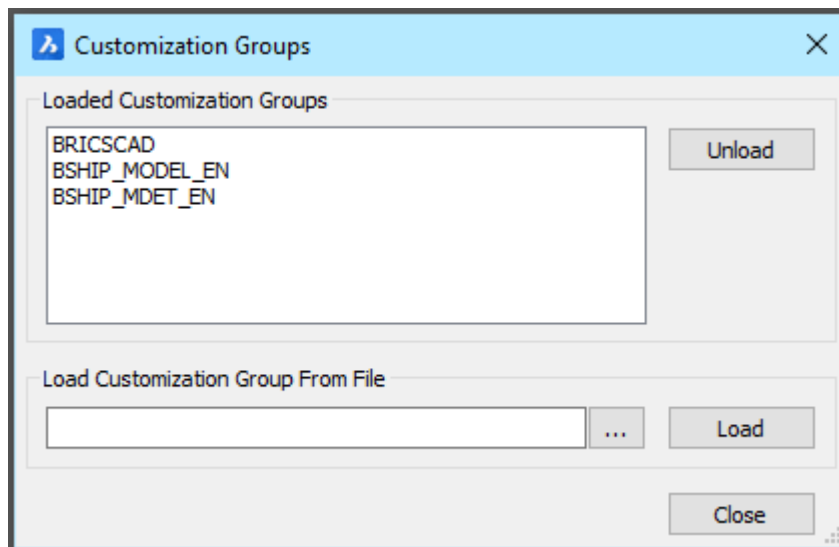


Figure 1

The window is designed to load and unload additional menus. If you don't have the menu on the downloaded menu list, you need to load it - you should press the button .... The Download menu file window opens (Figure 2).

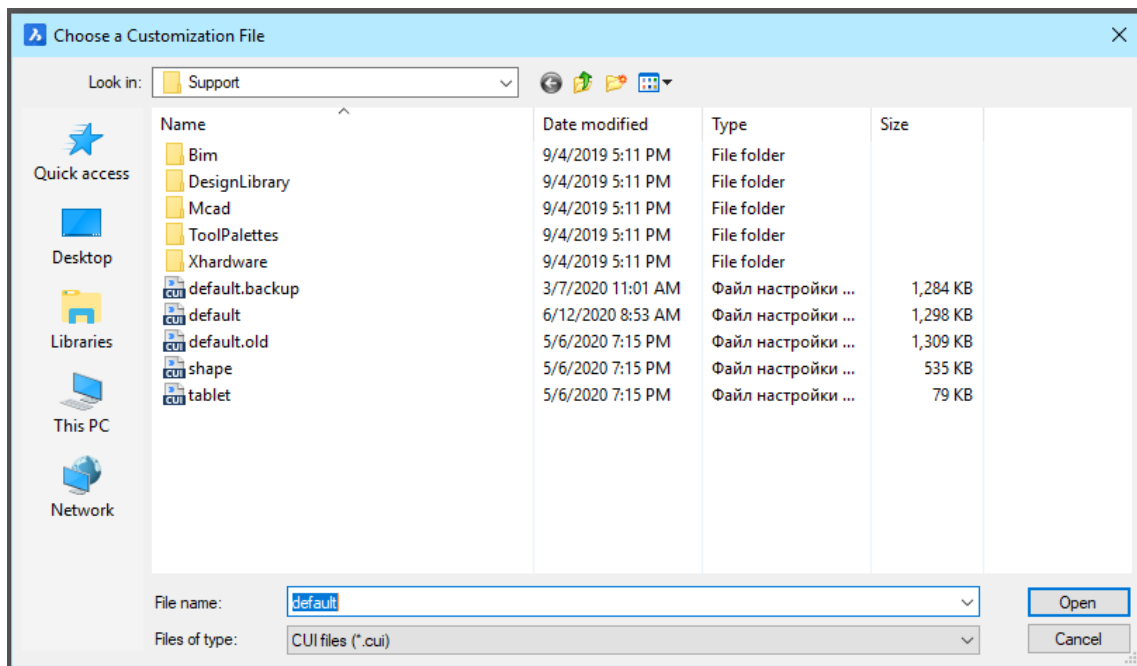


Figure 2

In the folder box, you need to set up a **BSHIP** folder.

By default, the file type box is the **CUI Files**, so the window will only display compiled **B-Ship** menu files (they have an extension .cui). If you don't have the menu you're looking for, you should change the file type to the **MNU Files** (.mnu, .mns) (Figure 3).

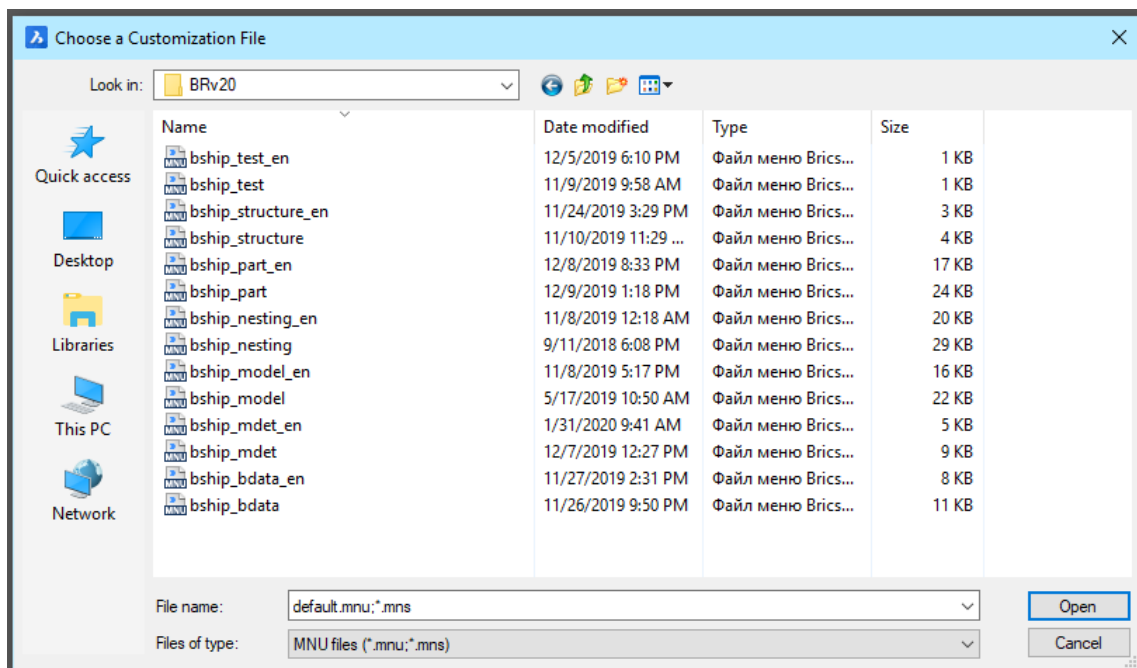


Figure 3

In this window, all modules have MNU files and are placed in the BSHIP\Sys\BRv18. bship\_mdet folder. For the **Mdet** menu, select bship\_mdet.mnu file and press the **Open** button.

The system will create a bship\_mdet.cui file and download the **MDET** menu to BricsCAD.

## 2.2. The basic menu of the module

Figure 4 shows the main menu of the **Mdet** module.

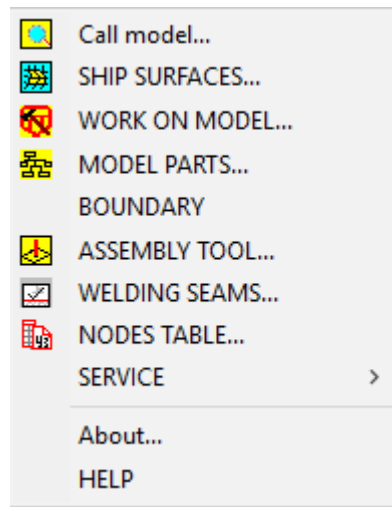


Figure 4

**Warning:** Before using the **Mdet** module, you need to activate the order for the current user in the **Bdata** module.

The command **Call model... Mdet** module allows you to operate with different models (from dwg-type business files) tied to the drawings of an active project.

The basic principle that is implemented in the **Mdet** module for binding files such as dwg drawings is this:

- all information about the project is concentrated in the project database;
- Information in the database is formed by drawings;
- drawing primitives can be placed in one or more dwg files.

The command **SHIP SURFACES...** allows you to form meshes in the model representing the ship's surfaces:

- a prototype (file with an extension .fef) created in the FREE!ship (GNU GPL) simulation program;
- a set of formative lines in one direction;
- showing the points of the frame;
- extruding the edge of the existing surface;
- by default, using the parameters of the current project.

The command **WORK ON MODEL...** allows you to generate different objects in the model, from point to surface, as well as to find points and lines of intersection of objects between each other.

THE command **MODEL PARTS...** allows you to form sheet parts on flat-cut models, sweep and flexible frame for non-flat model details, profile flat and bent parts, knelt and belts.

The **BOUNDARY** command allows you to highlight a flat closed circuit on the segment of the model. The command **ASSEMBLY TOOL...** allows you to form an assembly rig for the section in the active model.

The command **WELDING SEAMS...** allows you to form a database of welds of the project and generate chamfer parameters on the edges of the part.

The command **NODES TABLE...** allows you to form a table of design nodes in the project database.

The command **SERVICE** helps you visualize the model's objects.

The command **About...** calls the screen a window with the props of the Mdet module.

The **HELP** command calls the **Mdet** module reference system.

### 3. WORK WITH MODELS

#### 3.1 The window Interface of a command **Call model...**

Figure 5 shows the "B-Ship" project model management dialog, called by the command **Call model...**

The window "B-Ship+ Works with order models" contains:

- a revealing list of The Project\_Order\_Portion;
- The project's Database Object Tree Window;
- View window;
- The window of props;
- Model set window;
- set of functional buttons.

You can zoom in on the window, you need to specify the edge or angle of the window and stretch it.

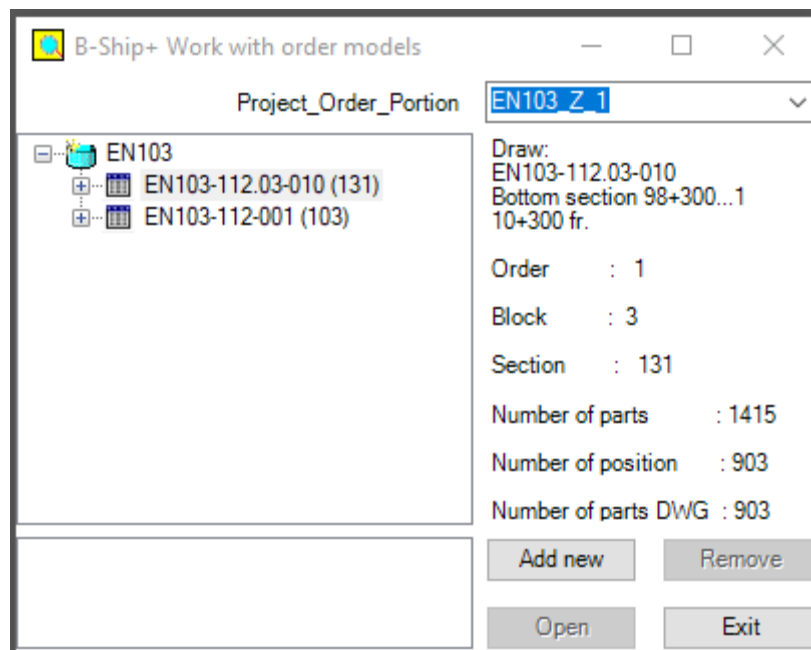


Figure 5

Exiting the "Working with order models" window is by pressing the **Exit** button.



When you select project objects in the project tree, the model management window shows the drawings of the active project database, and the project details are shown in the view window, as shown in Figure 6.

In list **Project\_Order\_Portion** can be changed to the current user's project, and all the global variables required for the module to work are set automatically.

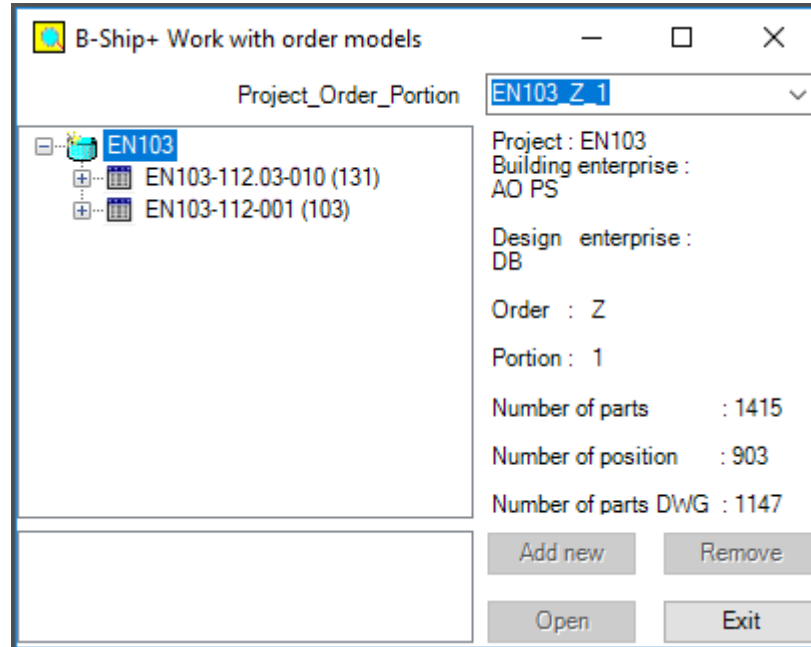


Figure 6

**Warning:** list **Project\_Order\_Portion** shows projects that are in the works and registered for the current user in the **Bdata** module.

When you select drawing objects in a drawing tree, the model control window has a view shown in Figure 5.

The view window shows the details of the drawing, the **Add new** button is unlocked, which indicates the ability to connect to this drawing of model files (separate files like dwg). Point the drawing in the tree and press the **Add new** button. A window appears on the screen, shown in Figure 7.

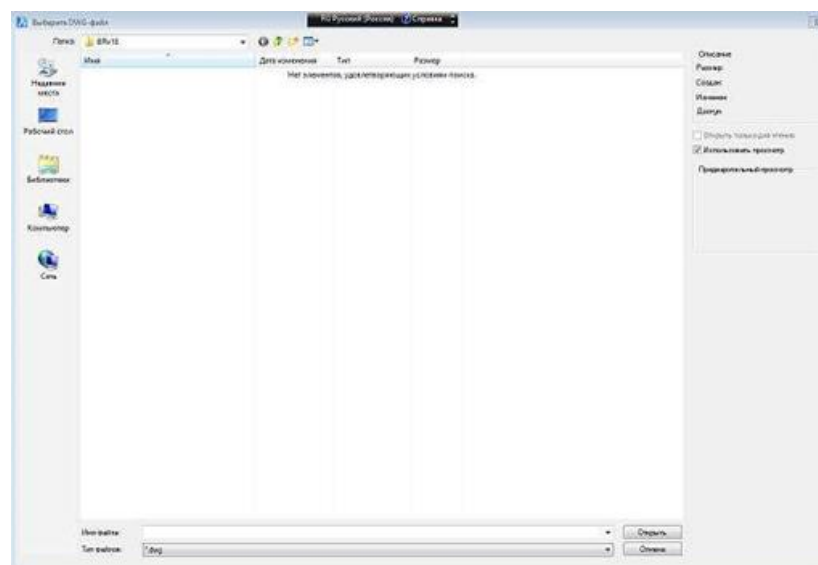


Figure 7

This window needs to set the way of access, select the model file and click on the Open button.  
Warning: If you choose a model file not from the <Model>current project directory, and if you have such a file, you will be asked to replace the model file in <Model>the catalog.

As a result, we return to the "B-Ship+ Work with order models", where the name of the model file appears in the tree under the specified drawing.

The model control window will have the view shown in Figure 8.

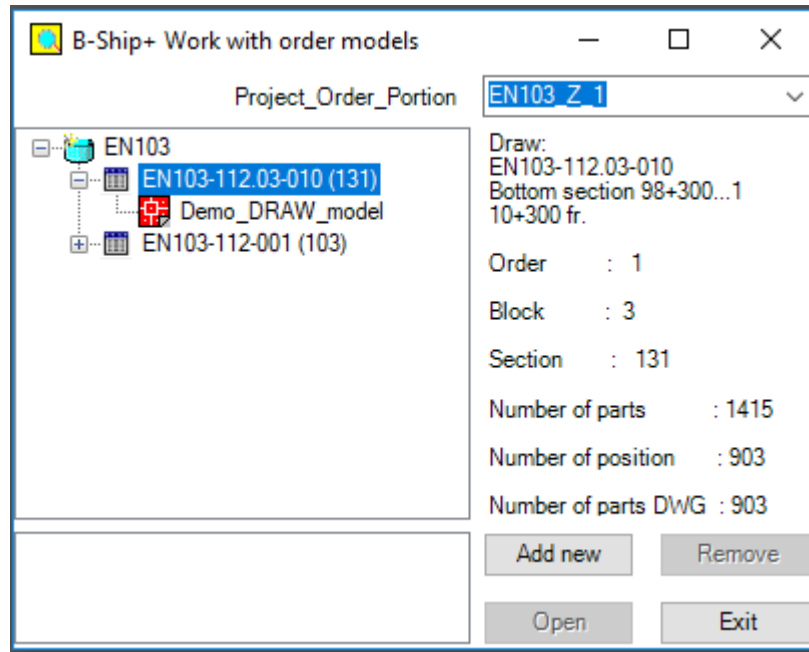


Figure 8

When you select the model objects in the tree, the model appears in the viewing window and the window will have the view shown in Figure 9.

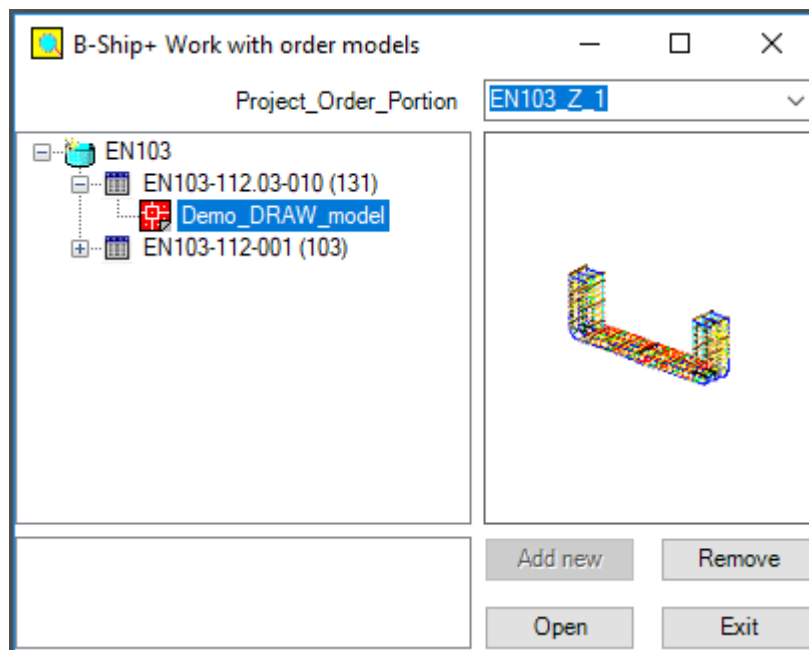


Figure 9

The **Open** and **Remove** buttons are activated, indicating that the model can be called and activated or the model removed from the object tree. To remove the model from the object tree, you need to select a model and press the **Remove** button. On the screen pops up the window shown in Figure 10.

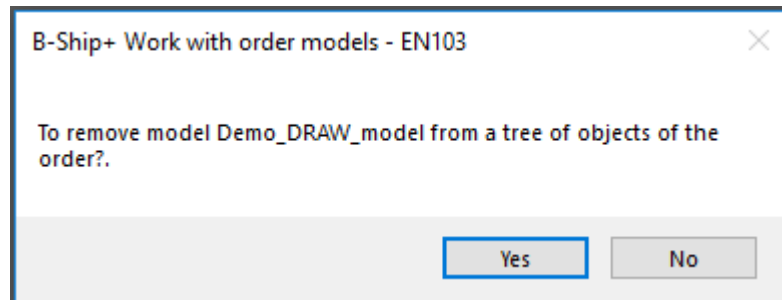


Figure 10

When you press the **Yes** button, the model is removed from the model tree. The model file is not removed from the project model catalog.

When you press the **Open** button, the model file is downloaded to the BricsCAD graphics editor, and the status of the model, Active, is fixed in the lower window.

**Warning:** Because it takes a while for the file to load, you need to wait for the model control window to appear.

Figure 11 shows the view of the "B-Ship+ Working with order models" in this case.

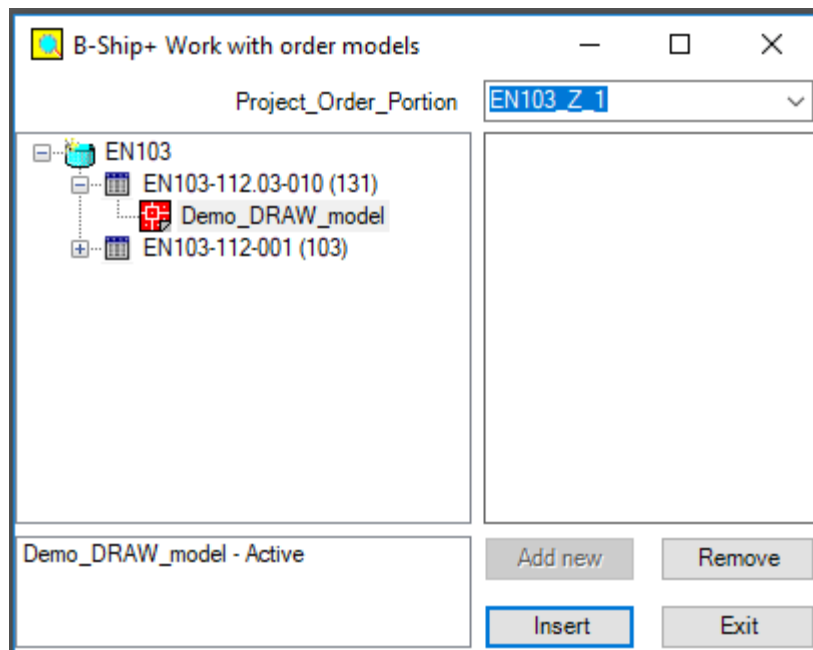


Figure 11

In the current session, only one model can be active, i.e. one that remembers all the new primitives that occur when working with the model. You may want to have other models in the editing session, either to copy them or to link them. Such models are defined as background models and can be inserted into the active model as dismembered blocks.

If there is an active model, then when you click on the button Insert primitives of the models specified in the tree models will be loaded into the active model, and in the lower window will appear a line with the name of the model and a sign - Block. Figure 12 shows the view of the "B-Ship+ Work with order models" in this case.

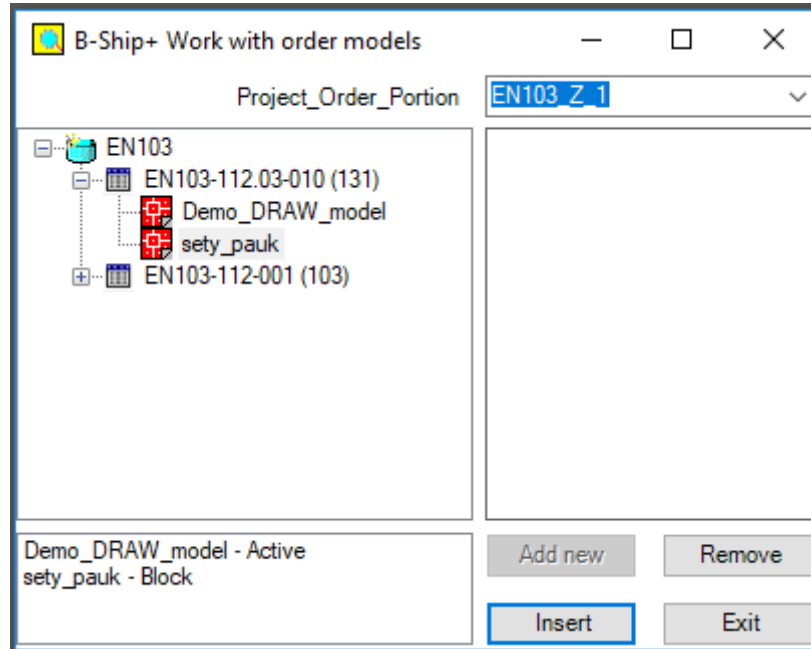


Figure 12

When you select in the lower window of a set of line models with an active model or block, the **Clean**, **Show**, and **Remove** buttons are activated.

When you press the **Show** button, the model primitives in the model set will be illuminated, and the lights will be removed when you press the **Clean** button.

When you press the **Remove** button for the sign-like model set in the window, active pops up the window shown in Figure 13.

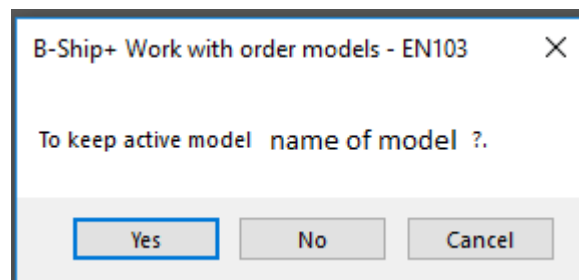


Figure 13

When you click on the **Yes** button, the model file will be recorded, and when you click on the **No** model file will not be recorded in the database. Then a window pops up with a request to remove the primitives of the active model and close the drawing - on the button **Yes** primitives of the model will be removed from the window of the BricsCAD edit and the window of the set of models will be cleared. When you press the **Cancel** button, everything stays the same.

When you press the **Remove** button for a model set highlighted in the window with a sign - The block pops up the window shown in Figure 14.

When you press the **Yes** button, the model line with the sign - The block will be removed from the list of fashion-lei and accordingly the primitives of this model will be removed from the environment of the active model.

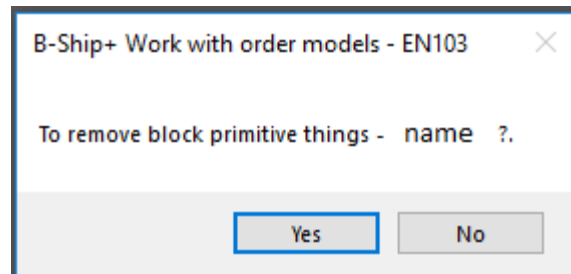


Figure 14

#### 4. FORMATION OF SHIP SURFACES

##### 4.1. The window interface of a command **SHIP SURFACES ...**

Formation of ship surfaces probably only in the environment of initialized by means of module **Model** of system **B-Ship+**, differently by a command call emerges a window shown in Figure 15.

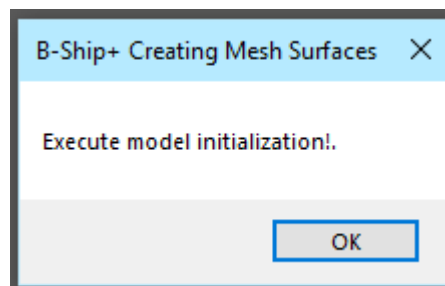


Figure 15

Figure 16 shows the window called by the command **SHIP SURFACES ...**

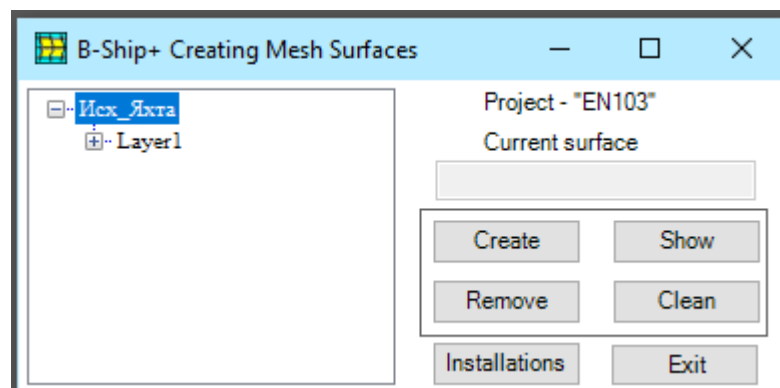


Figure 16

The "B-Ship+ Creating Mesh Surfaces" window contains:

- a window of the model's surface tree;
- Surface name input window;

- set of functional buttons.

You can zoom in on the window, you need to specify the edge or angle of the window and stretch it.

In the surface tree window, the top item is the name of the model file.

Exit from the "B-Ship+ Creating Mesh Surfaces" window is at the touch of the **Exit** button. Pressing the **Installations** button triggers a window shown in Figure 17 to the screen.

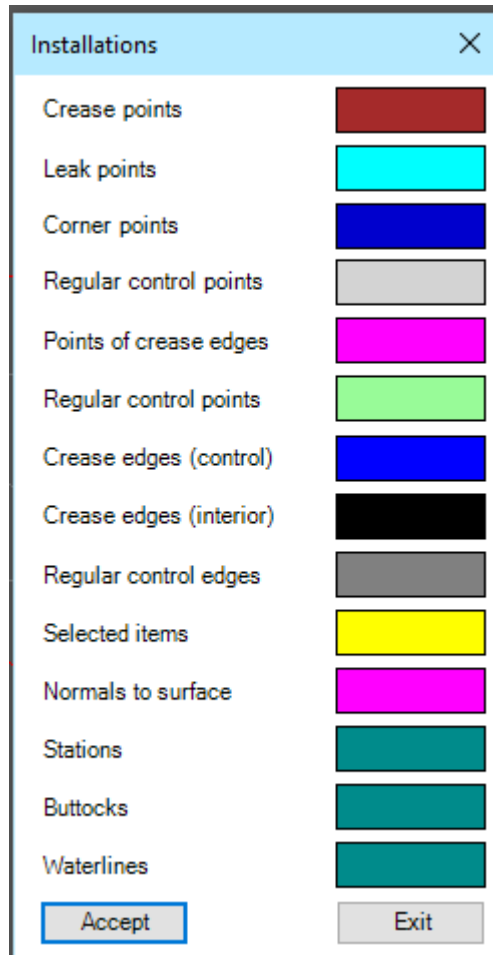


Figure 17 .

The ship's surface is formed by the command **SHIP SURFACES ...** is a subdivision surfaces with faces, edges and points.

A face is a little piece of the entire surface (sometimes also called a patch) and is usually defined with 4 points. In some areas it is desirable to have less (or even more) points, but generally the best results are obtained when most of the faces consist of 4 points.

All successive points of the face are connected by the edges of two kinds - boundary, formed on the edge of the surface.

Boundary edges. These are edges which form, as the name suggests, the boundary of the surface. A boundary edge is characterized by the fact that it has always only 1 face attached to it. Examples of boundary-edges are the sheer line (when the ship is not fitted with a deck) or the centerline of the ship. The centerline, or profile, is in fact a special case. When defining the hull only its portside is created. So all edges on the center plane are

boundary-edges as they have only one face connected to it. In reality the ship is symmetric, and when performing calculations creates a virtual symmetric ship by mirroring the model in the center plane.

Regular edges. These are all other edges away from the boundary of the surface, and must always be shared by 2 adjacent faces. Regular edges are drawn as dark-gray lines. The two faces connected to an edge are joined smoothly along their shared edge. It is possible however to mark an edge as a crease-edge. When doing so, the two faces are joined in a tangent-discontinuous way. In other words, crease-edges are used to define knuckle lines. A boundary-edge is in fact a specific case of a crease edge since there is no second face to make a smooth transition.

Points form the basis of the surface. Most of the editing is done on a point-level by moving points to different locations, inserting new points or removing existing points. Basically there are two different types of points of interest to the user. These are:

- Regular points. These are all points other than cornerpoints. It is important to realize that these points have a certain offset to the resulting surface. This deviation to the surface is bigger in surface areas with high curvature. It becomes less when more points and edges are inserted.
- Cornerpoints. Cornerpoints are specific points, usually connected to 2 or more crease-edges. Just like a crease-edge can be used to specify that two faces have to be connected in a discontinuous way, cornerpoints may be used to do so with two adjacent edges. Cornerpoints are the only type of points actually located on the hull surface. Points where 3 or more crease-edges meet are automatically set to cornerpoints by the program.

The window shown in Figure 17 is designed to highlight the appropriate surface objects in color.

The color of the buttons can be changed by pressing a button and choosing a color in a floating **Color** window.

When you press the **Accept** the color of the objects in the model will be set according to the color of the respective buttons. When you press the **Exit** button, the color of the buttons will be set by default.

When you press the **Create** button, the window shown in Figure 18 is triggered.

At the top of the window are the parameters of the active project, and at the bottom switches and buttons **Apply** and **Exit**.

**Warning:** The switch **Surface** expression is blocked, it is unlocked if at least one existing surface has been activated.

**B-Ship+ Project EN103**

Name - "Bulkcarrier"

Length, м

Breadth, м

Depth, м

Draught, м

"Axis of abscisses from a stern in a bow"

Surface name

Surface on a prototype (.fef)

Surface on a set of lines

Surface instructions of points

Surface expression

Surface by default

Quantity of points on length

Quantity of points on height

Figure 18

When you activate the **Surface on a prototype (.fef)** and press the **Apply** button, the window shown in Figure 19 pops up.

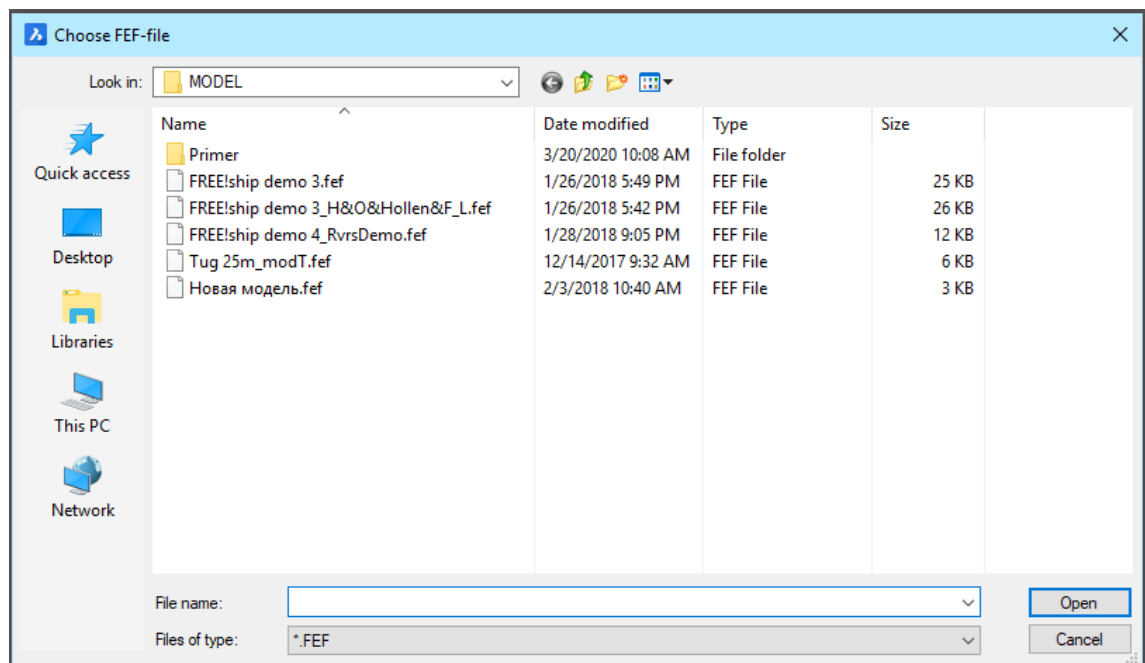


Figure 19

In this window, you need to specify a prototype file with a .fef extension and press the **Open** button.



**Warning:** .fef-enhanced files are formed in a software environment - FREE!ship. In this program's environment, you can create a surface with set parameters. An example of a .fef extension file is listed in the catalog... BSHIP\Samples\bs103\_1\Model\.

When you activate the **Surface on a set of lines** you need to set the surface name in the input field, and in the input box, the number of dots along the length set the number of line dividing points along the length. When you press the **Apply** button, the procedure for specifying the sequence of formative lines of one direction (all lines should be flat splines) is started and the surface is calculated.

When you activate the **Surface instruction of points** when you press the **Apply** button, you need to set the surface name in the input field, and in the input fields the number of points by length and the number of points by height.

**Warning:** The surface name is used to form a layer and object in the tree surfaces, so you should strive for brevity. On the points given on the screen will form the frame of a subdivision surfaces.

**Warning:** The method **Surface expression** is available if the current surface is defined.

When you activate the **Surface expression**, you need to set the surface name in the input box and click on **Enter**, and then activate the **Apply** button.

When you press the **Apply** button, the window shown in Figure 20 pops up on the screen.

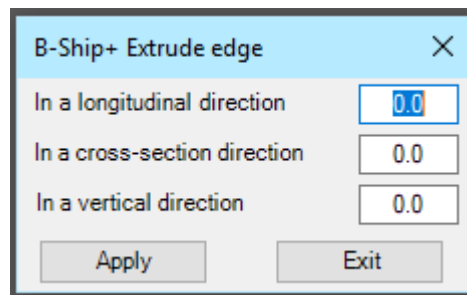


Figure 20

In this window, you should specify in the input box the edge extrude value in the appropriate direction and press the **Apply** button.

When you activate the **Surface by default**, you need to set the surface name in the input field, and in the input fields, the number of points by length and the number of points in height.

**Warning:** The number of points should not be less than the default offer.

When you press the **Apply** button, you start the procedure for forming a subdivision surfaces frame similar (depending on the number of points) shown in Figure 21.

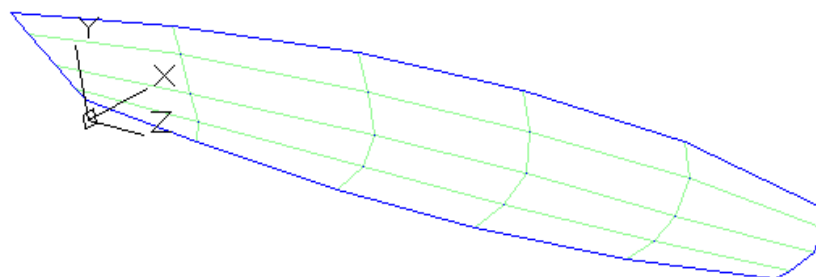


Figure 21

After receiving the frame of the subdivision surfaces, you can begin to form the surface of the desired quality. If the version used by the BricsCAD system allows you to perform the necessary manipulations with a multifaceted network (smoothing, editing tops, converting to NURBS, etc.), you can use its capabilities, otherwise you need to use the tools that the module **SHIP SURFACES ...**

Figure 22 shows the "B-Ship+ Creating Mesh Surfaces" after a multi-faceted network has been formed.

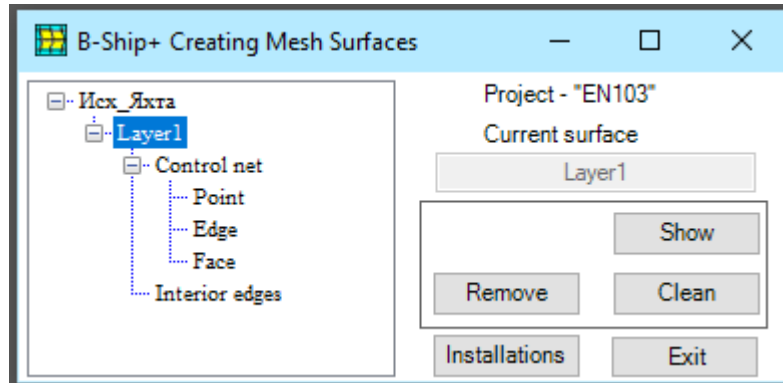


Figure 22

The window in the tree shows the current surface and the **Show**, **Clean**, and **Remove** buttons are available, pressing which causes appropriate action with the surface.

When selecting the surfaces of the object in the tree, the control grid window has the view shown in Figure 23.

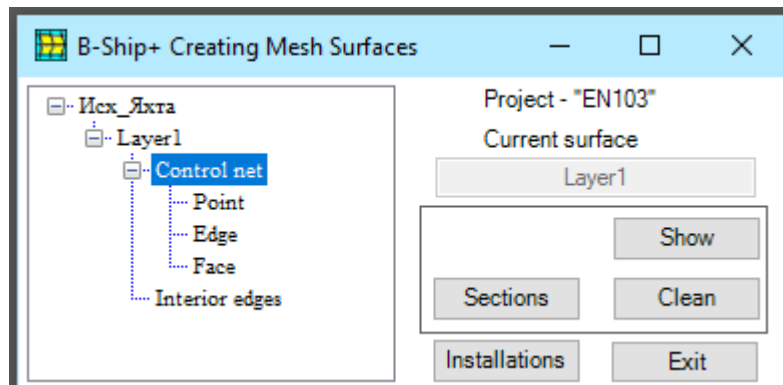


Figure 23

Pressing the **Show** or **Clean** button triggers appropriate action with the control grid, and pressing the **Section** button triggers the window shown in Figure 24.

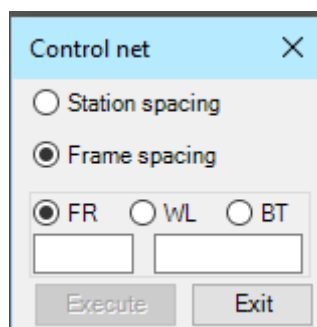


Figure 24

In this window, you need to install the **Station spacing** or **Frame spacing** switch and switch **FR**, **WL** or **BT** and enter the input fields with the appropriate number and offset with the sign.

You can use a dot in the model to get the number and shift the plane. The point selection process is run by a double click in the section number input box. The cross-section formation procedure starts when you press the **Execute** button.

When selecting the **Point** in the tree, the window will have the view shown in Figure 25.

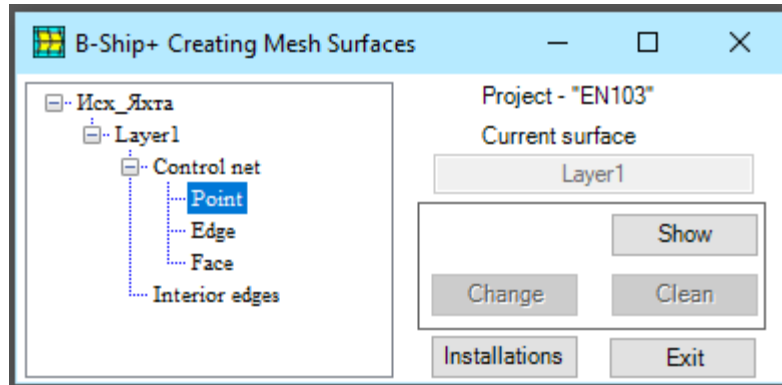


Figure 25

In this window, the **Show** button is available, when you click on which the button will be illuminated points of the control network, and the **Change** button will be available. When you press the **Change** button, the window shown in Figure 26 pops up.

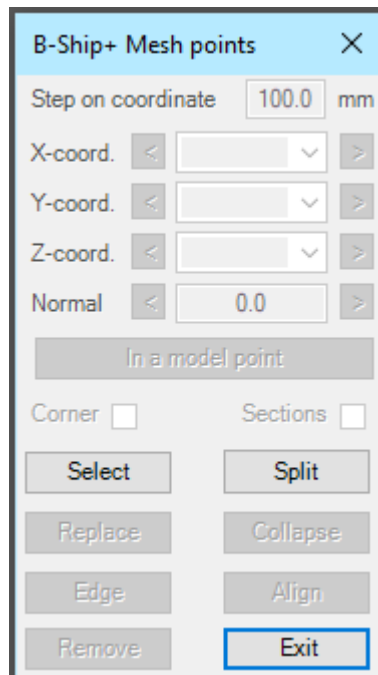


Figure 26

In this window, **Select**, **Split** and **Exit** buttons are available.

When you press the **Split** button, the procedure of inserting a new point starts, either at the point indicated by the edge or in the middle of the edge.

When you click on the **Select** button, the checklist is set to be a point-picking procedure. After selecting the points, the window has a view shown in Figure 27, and on the control grid the chosen points changes color to color of choice.

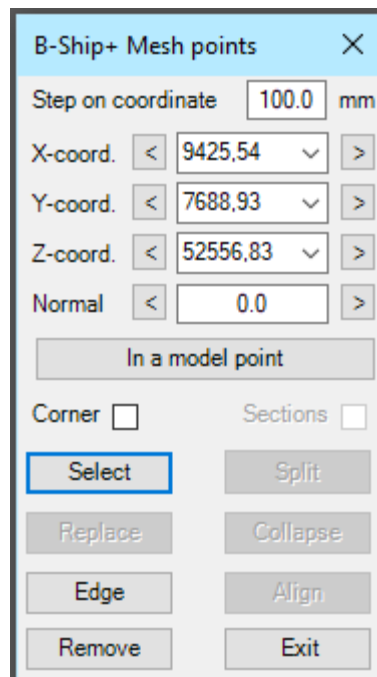


Figure 27

The **Collapse** button is unlocked if the points of the cracked edges are selected. At the top of the window, the settings input fields are unlocked to change the coordinates of the points. In the **Step on coordinate** input box, you can set a step of increments of the appropriate coordinate or normal offset to the surface when you press the button with the sign "<" or ">". If you select the boundary line point, the **Corner** index is unlocked, allowing you to set the corner point.

If a regular control grid point is selected, the activation of the section pointer sets the start of the procedure for the formation of auxiliary sections (frame, waterline and buttock) on the smoothed surface near the given point, it helps to compare the result with "marking lines" that can be inserted into the model. Any change in coordinates or pointers at the top of the window will be unlocked by the **Replace** button, which is used to replace the point.

On the control grid, you can choose several points at once. When you select two points, the window will have the view shown in Figure 27. The **Edge** button is unlocked, when pressed, the process of forming a edge between these points is started.

**Warning:** The **Edge** button is unlocked and when you select more than two points, in this case more than one edge will be formed. When you select more than two points the window will have the view shown in Figure 28, the **Align** button is unlocked. When you press the **Align** button, all selected points are moved to a straight line between the extreme points in the normal to straight points.

**Warning:** When selecting multiple coordinate points, X, Y, and Z are included in the disclosure list. For each coordinate, you can set the value from this list. Changes at the top of the window will be used for all points. You can go back to your original state by using a rollback.

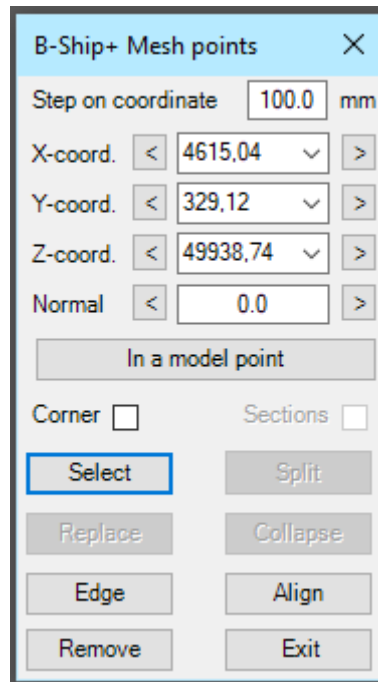


Figure 28

If you click, **Remove** the selected points will be removed from the control network. When you press the **Exit** button, you exit the "B-Ship+ Mesh points" window and return to the "B-Ship+ Creating Mesh Surfaces" window. If you select the surface of the **Edge** in the tree, the window will have the view shown in Figure 29.

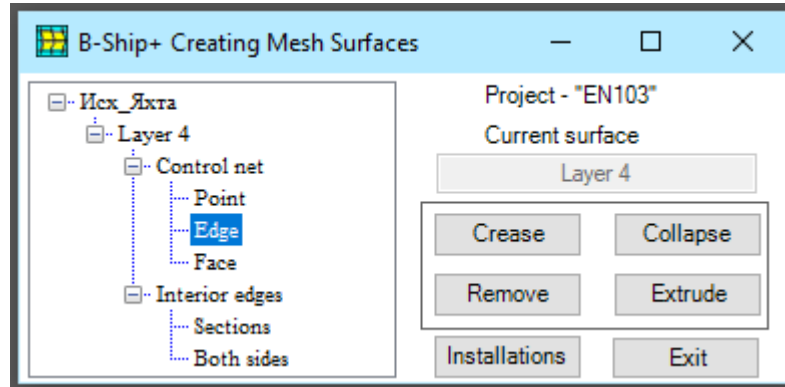


Figure 29

When you press the **Crease** button, the procedure of forming a crease line on the control mesh - it is necessary to specify those edges that form a crease of the surface. The color of these edge will change to the color of **Crease edges (interior)** set in the Installation window. When the existing edge is crease, it turns into a regular edges.

When you press the **Collapse** button, the procedure of removing these regular edges or crease lines from the control mesh.

**Warning:** It is not possible to remove the edges of the boundary lines under the **Collapse** button. When you press the **Remove** button, you start the face removal procedure that is adjacent to the edge. This procedure can also remove the edges of the boundary lines.

When you press the **Extrude** button, the window shown in Figure 30 pops up.

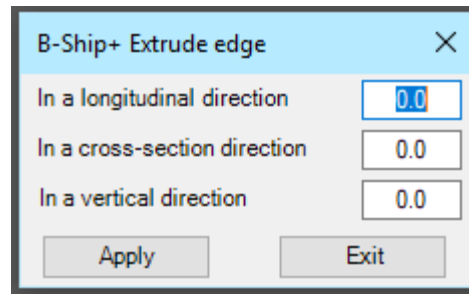


Figure 30

In this window, you need to set the amount of extrude the edge of the boundary line in the appropriate direction.

**Warning:** At the size of the displacement to the CL (meaning with the sign "-") more than half a wide of the hull of the ship offset equals the half-wide of the vessel. When you press the **Apply** button, you start the process of rebuilding the surface mesh with the boundary line edges out and returning to the surface window.

When you select **Face** in the tree, the window will have the view shown in Figure 31.

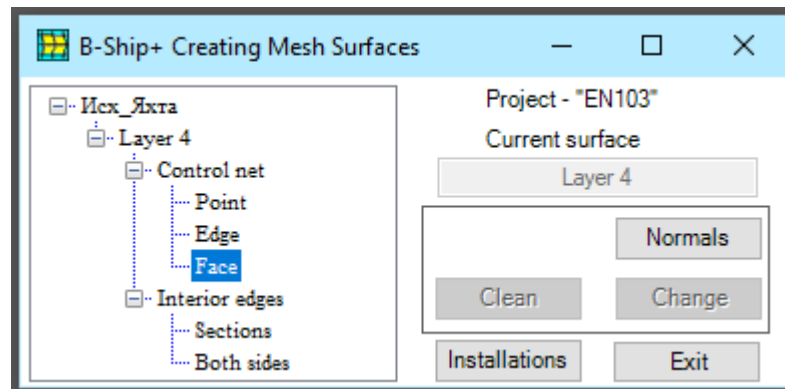


Figure 31

When you press the **Normals** button the result is presented in the same way shown in figure 32.

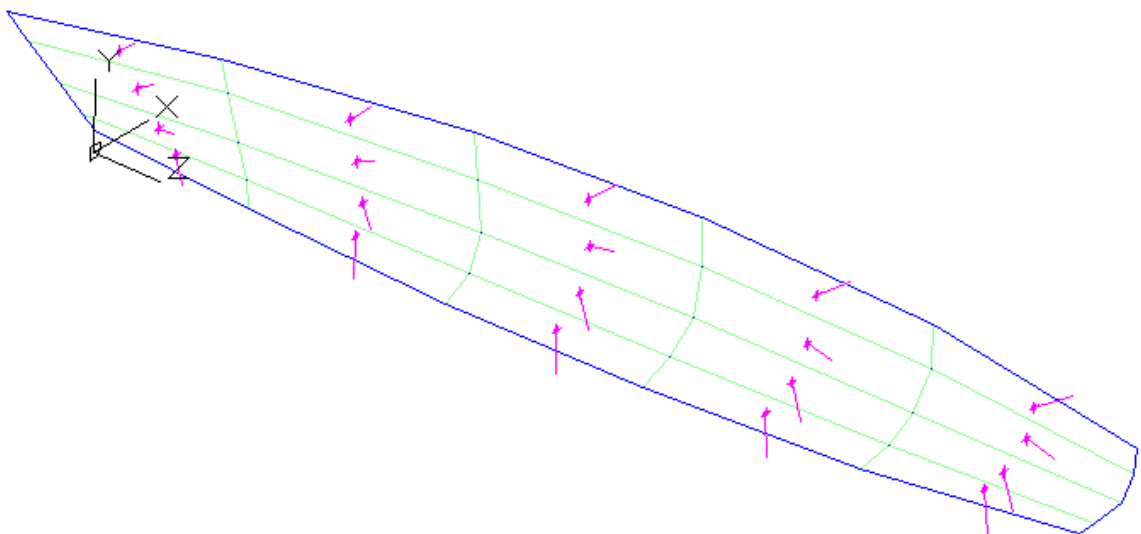


Figure 32

The buttons **Change** and **Clean** unlocked.

When you click on the **Change** button, the normal changes to the opposite as a result of the re-engineering of the control network.

When you press the **Clean** button, the normals are removed.

When you select in the tree **Interior edges**, the window will have the view shown in Figure 33.

**Warning:** The interior edges are in fact the edges of the subdivided surface. The higher the precision is set, the more edges are shown. The interior edges are drawn in the color of the layer they are assigned to. The interior edges is used in the generation of frames, waterlines and buttocks. Subdivided surface can be smoothed out by BricsCAD, if the appropriate tools are available.

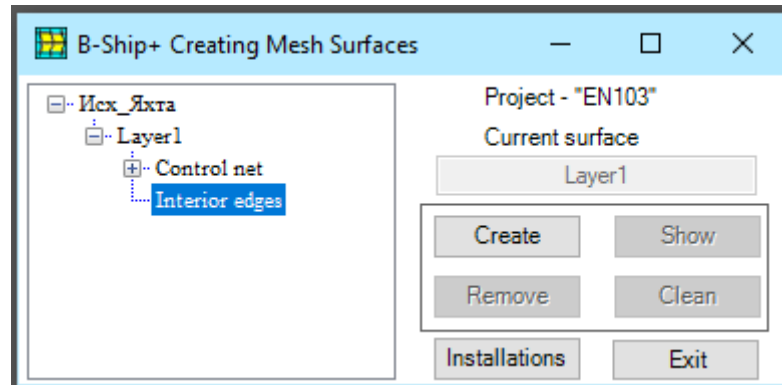


Figure 33

In the absence of the interior edges, only the **Create** button is unlocked. When you press the button, the smoothed mesh is started, the result is similar to that shown in Figure 34.

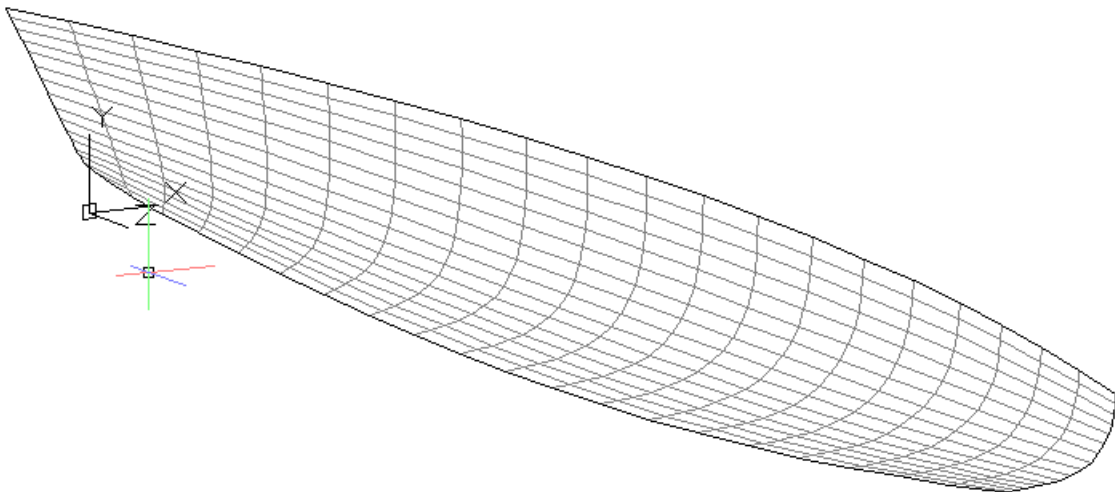


Figure 34

The "B-Ship+ Creating Mesh Surfaces" will have the view shown in Figure 35.

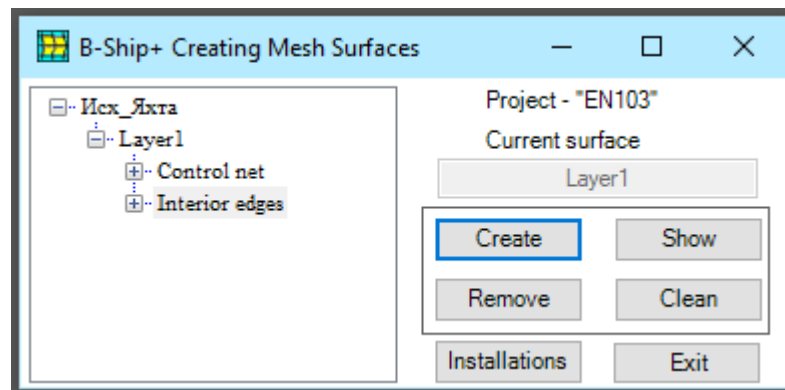


Figure 35

The **Show**, **Remove** and **Clean** buttons are unlocked and when you press a button, the appropriate procedures are triggered. If you open the **Interior edges** in the surface tree, the window will have a view, shown in Figure 36.

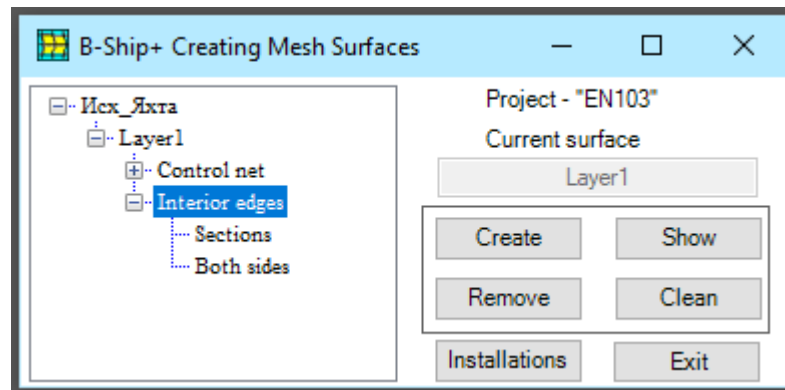


Figure 36

When selecting a **Sections** point under the point **Interior edges** in the tree of surfaces, the window has a view shown in Figure 37.

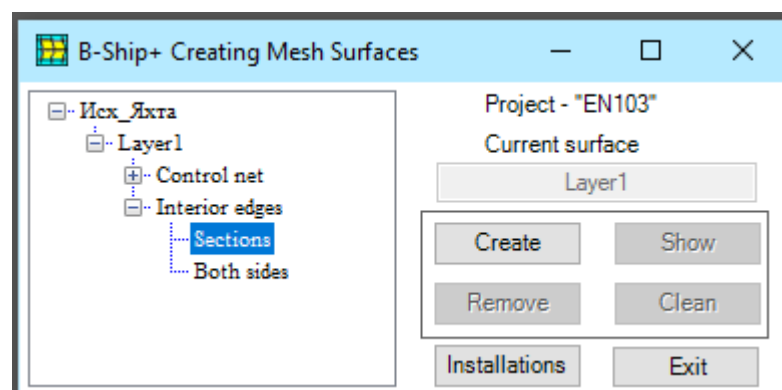


Figure 37

When you click on the **Create** button, the window shown in Figure 38 pops up.

In this window, you need to install the **Station spacing** or **Frame spacing** switch and the **FR**, **WL** or **BT** switch and enter the input fields with the appropriate number and offset with the sign, after which the button with the arrow ">" and the **Execute** button is unlocked. If you immediately press the **Execute** button, one set section will be formed.



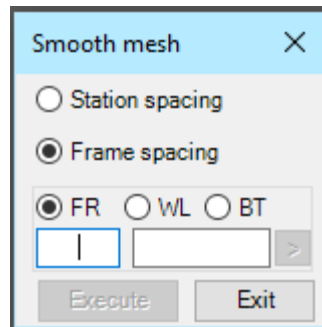


Figure 38

You can use a point in the model to get the number and shift the plane. The point selection process is run by a double click in the section number input box.

When you press the ">" button, you can set the number and shift the second section for the section group, and when you re-press the ">" button, a window pops up that looks like figure 39.

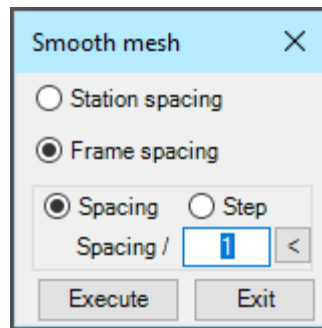


Figure 39

In this window, you need to set a setting for the formation of a group of sections of the control net and press the **Execute** button. A group of sections will be formed on a smoothed network.

If you click on the "<" button, you can go back to the beginning of the section job.

The **Show**, **Remove** and **Clear** buttons are designed to call the appropriate features.

When selecting an item **Both sides** under the point **Interior edges** in the tree surfaces the window has a view shown in Figure 40.

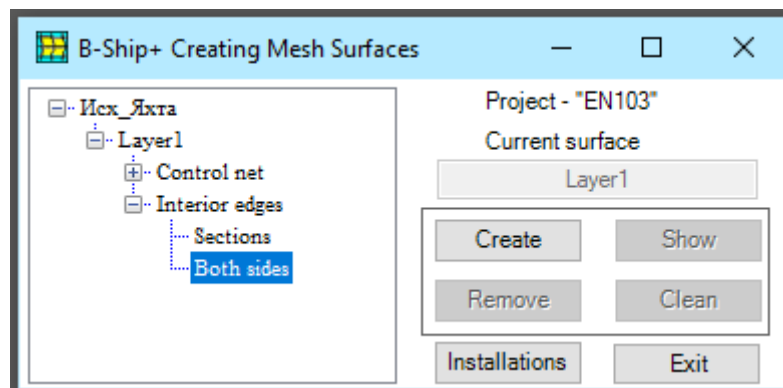


Figure 40

When you press the **Create** button, the smoothing of the interior edges and existing sections relative to the LC is triggered. The **Show**, **Remove** and **Clean** buttons are designed to call the appropriate features relative to the second board.

## 5. WORK ON MODEL

5.1. The window interface of the **WORK ON MODEL ...**

Figure 41 shows the window called on the command of **WORK ON MODEL...**

Exit from the window "B-Ship' Work on the model" is made by pressing the **Exit** button.

**Project\_Order\_Portion** list is an active project. If necessary, you can take another project from the list.

The window features the tabs of **Points**, **Lines**, **Surfaces**, and **Intersections**. Tabs are pre-assigned to generate objects such as point, line, surface, and where points or lines of intersection of lines and surfaces are placed in a model of flat cross-sections or between them.

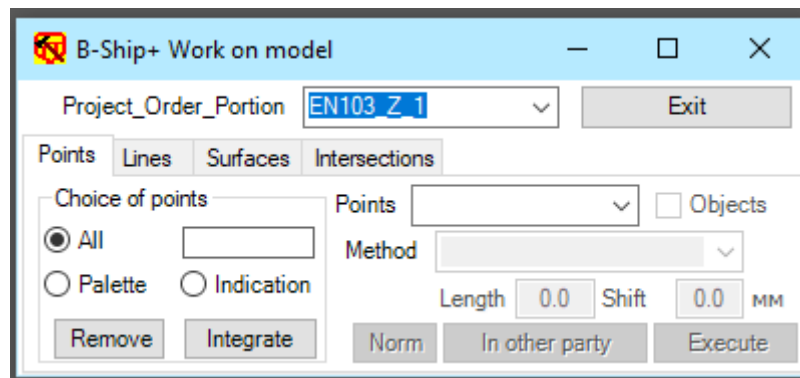


Figure 41

5.2. **Points** tab

When you activate the **Point** Tab, the "B-Ship+ Work on model" window has the view shown in Figure 41. The tab has a group of switches **Choice of points** with switches **All**, **Palette** and **Indication**, color field and **Remove** and **Integrate** buttons.

The points removal and integrate procedures that are triggered when you press the appropriate buttons use an active switch in the **Choice of points** group. Activate the **All** in group **Choice of points** to select all points in the model, switch the **Indication** to select the color primitives indicated in the model point, and the **Palette** switch to select points by color selected from the palette. If the selection of points is made by color, the top right corner of the group selecting points shows the chosen color.

New points are generated when you press the **Execute** button and the **In other party**. To activate these buttons, you need to set the view of the **Points** and the **Method** the point is formed. The opening point list has a view shown in Figure 42.

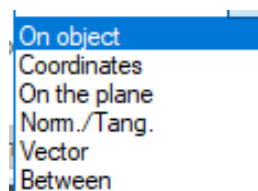


Figure 42

When you choose how to set the **On object**, switches **Objects** is unlocked.

Activation of the **Objects** pointer causes the process of selecting objects in the model (line or network) to perform the procedure. If lines have been selected, the **Method** list shown in Figure 43 is activated.

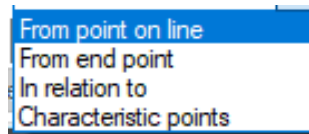


Figure 43

If mesh have been selected, the **Method** list shown in Figure 44 is activated.

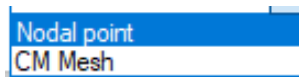


Figure 44

When choosing a method **From point of line** in the **Length** field, you can enter the distance value in mm from the specified point to the calculated one.

After the task of length, the buttons **Execute** and **In other party** are active. A procedure called on the **Execute** button or **In other party** asks for a point on the object and draws a calculated point on the current layer and the current color.

When choosing method **From the endpoint**, the procedure called on the **Execute** button or **In other party** as the base point takes the starting or end point of the line.

When choosing a method **In relation to**, you want to set a length from the starting point of the line to the calculated point to the length from the calculated point to the end point of the line. Attitude 1:1 sets the middle point of the line.

When you select the **Characteristic points** method, the **Create** list, which has a look shown in Figure 45, is activated.

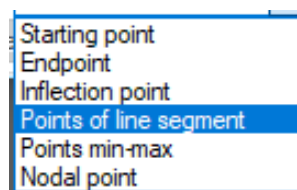


Figure 45

You need to select the view of the points you create in the list and press the **Execute** button, the button **In other party** in this case is blocked.

When you choose the **CM Mesh** method, click on the **Execute** button, the button **In other party** button is blocked, the procedure of calculating and drawing the point of the center of the mesh mass starts.

When you choose how to set the **Coordinates** point (Figure 42), the "B-Ship+ Work on model" window will have the view shown in Figure 46.

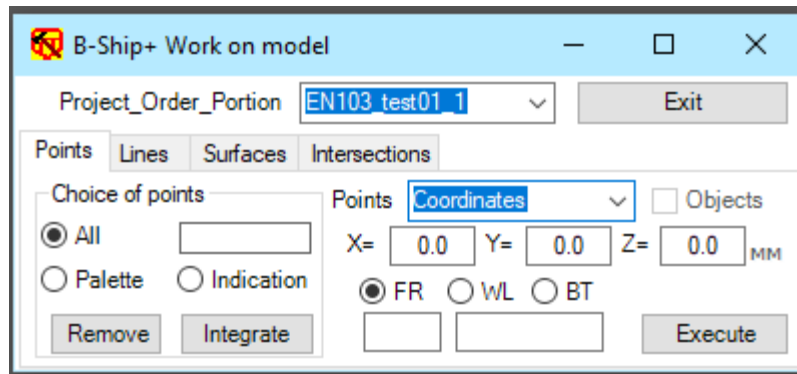


Figure 46

In this window you can set the coordinates of the point in the respective fields of the coordinates, and you can use a table of frames for the job, setting the number and offset for the corresponding section (Frames - **FR**, Waterlines - **WL**, Buttocks- **BT**).

When you press the **Execute** button, you start the process of calculating and drawing a point with specified coordinates.

When you choose the way to set **On the plane** (Figure 42), the "B-Ship+ Work on model" window will have the view shown in Figure 47.

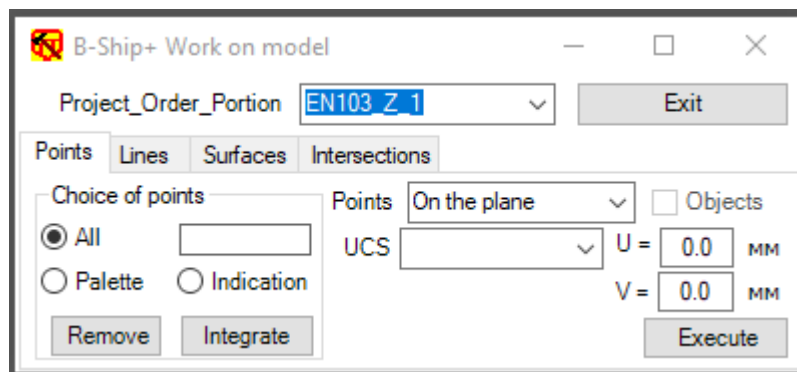


Figure 47

In this method, the point is set by two coordinates - **U** and **V** in the corresponding plane. The plane is set to choose from the **UCS** list (Figure 48).

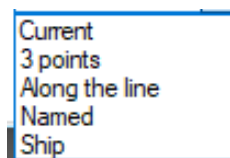


Figure 48

The **Current** user system of coordinates, **3 points** - the user can set the coordinate system with 3 points, the **Along the line** uses a plane indicated by a flat line. When **Named**, you'll see if you've named user coordinate systems, from which you can choose. When specifying **Ship** coordinates, you can perform using a table of spatulas. At the same time, the appropriate coordinate will be recalculated into the established use system of coordinates.

The point is drawn by clicking on the **Execute** button.

When choosing the way to set the **Norm./Tang.** (Figure 42) The window "B-Ship+ Work on model" will have the view shown in Figure 49.

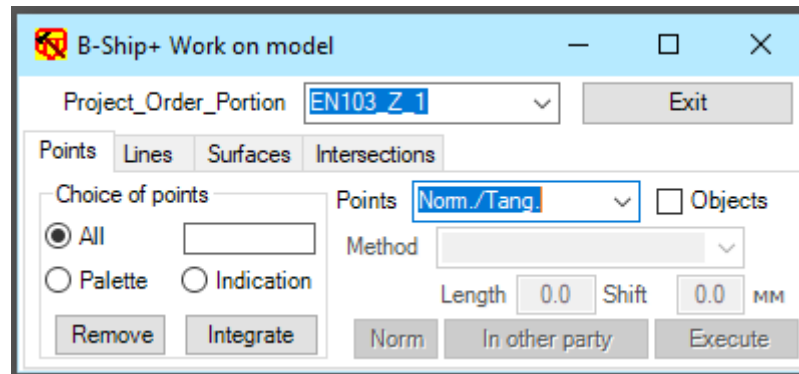


Figure 49

When you choose how to set the **Norm./Tang.**, the **Objects** index is unlocked. When selecting lines, the **Method** list will have the view shown in Figure 50.

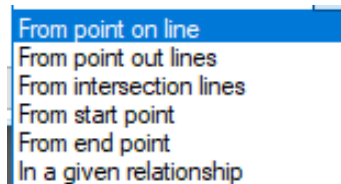


Figure 50

When you select mesh, the **Method** list will have the view shown in Figure 51.

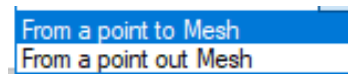


Figure 51

When you activate the way you determine the **From point on line**, **From intersection lines**, **From starting point** or **From end point**, you need to enter the norm/tangle in mm in the Length field. After that, the **Norm** buttons are unlocked, **In other party**, **Execute**. The condition of finding a solution is set by the **Norm** button. By default, the point is built according to the normal to the object - on the button the inscription **Norm**. When you press the **Norm** button, it will change the name to **Tang** and the point will be built on a tangent to the object. In the **Shift** input field, a point is set at what distance along the line. The length must be set with the "-" sign if the point needs to be shifted in the opposite direction of the line.

The point is calculated on the **Execute** button and on the **In other party** to change the direction of the point calculation.

If you activate the method of determining **From point out line**, the **Length** box will be blocked because the starting point will be set outside the object and the length of the norm./tang. will be determined by the calculated path. The condition of finding a solution is set by the **Norm** button. When the **Norm** is written, the button **In other party** is blocked, and at the inscription **Tang** - unblocked.

When you activate the way you determine **From point to mesh**, you need to enter the normal value in mm in the **Length** field. The buttons are then unlocked **In other party** and **Execute**.

The normal point to the object is calculated on the **Execute** button and **In other party**.

If the method of determining **From a point out mesh** is activated, the **Length** field will be blocked, because the original point will be set out of mesh, the length of the normal will be determined in a calculated way. The point is calculated by the **Execute** button.

If you activate the method **In a given relationship**, the " B-Ship+ Work on model " window will have the view shown in Figure 52.

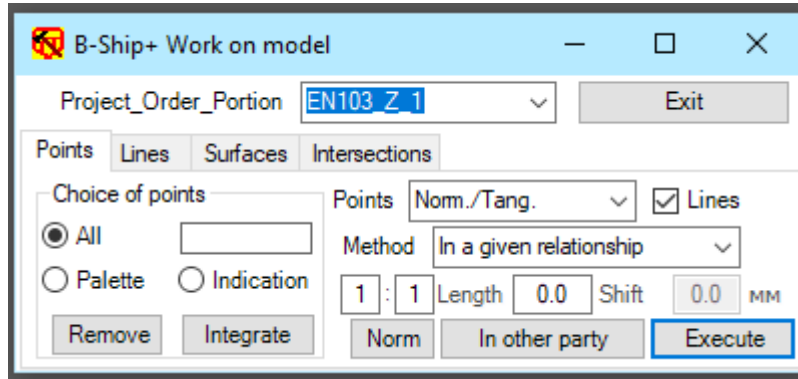


Figure 52

**Length** and **Shift** are similar in the way you identify **From point on line**. The starting point of the tangent or normal will be obtained at a distance from the starting point of the line, resulting from dividing the length of the line from the starting point to the end point of the line by the number equal to the amount of numbers set in the input fields multiplied by the number set in the first input field.

For example, if the first input field is set 1 and the second entry field is set 1, the line is split in half. If you enter 2 in the first entry field and the second one, the line is divided into three sections when you press the **Execute** button and the starting point of the normal is at the length of 2 sections from the starting point of the line. When you press the key **In other party**, the starting point of normal will be at the length of the number of plots set in the second input field.

When choosing the way vector points are set. (Figure 42) The "B-Ship+ Work on model" window will have the view shown in Figure 53.

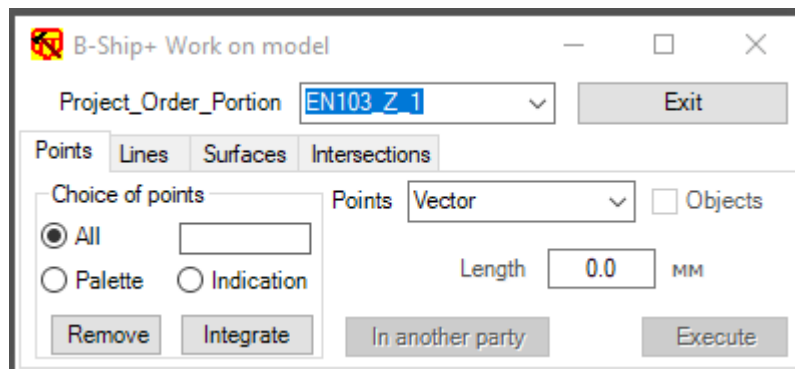


Figure 53

In the field of input, the **Length** of the vector is set in mm, i.e. at what distance in a given direction from a given point it is necessary to build the desired point. The button **In other party** changes direction to the opposite.

When you choose how to set the point **Between** (Figure 42) the "B-Ship+ Work on model " window will have the view shown in Figure 54.

In the input fields, the ratio of plots along the length of the segment from the first specified point to the second specified point is set. When you press the button **In other party** changes direction to the opposite.

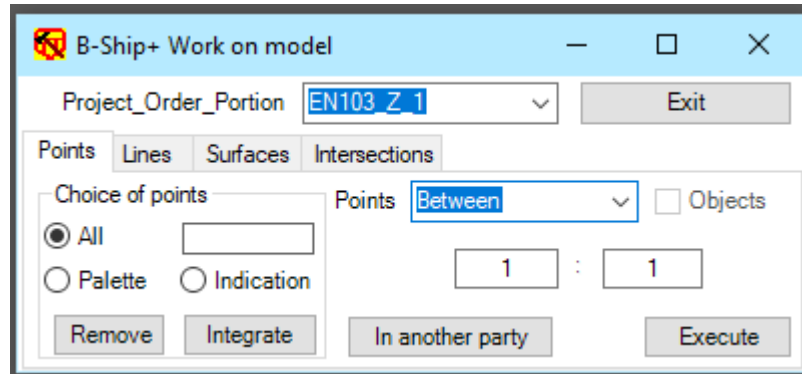


Figure 54

### 5.3. Lines tab

When you activate the **Line** tab, the "B-Ship+ Work on model" window has the view shown in Figure 55.

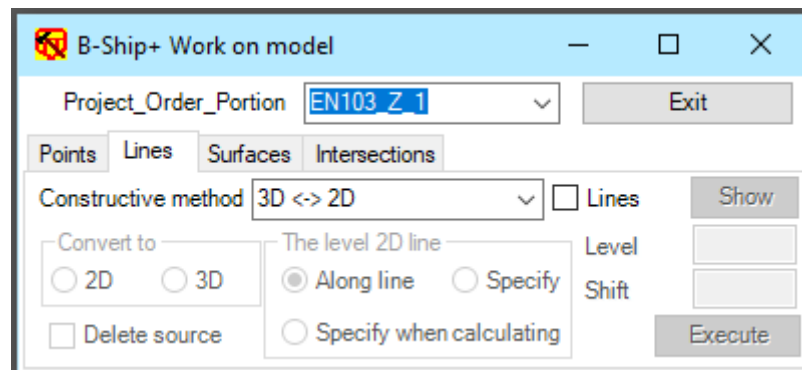


Figure 55

The build method shown in Figure 56 shows how to define the line.

The **3D <-> 2D** method is designed to convert lines either into flat (2D) or spatial (3D) lines, which are set by the corresponding switches in the **Convert to** group.

The **Lines** activation triggers the process of selecting lines in the model. When you press the **Show** button, the procedure for illuminating the selected lines starts in model.

Activate the pointer **Delete source** indicates that the source lines need to be removed.

For 2D lines, **The level 2D line** is unlocked and the **Shift** input field with the resulting line (plus or minus) sign is unlocked relative to the baseline plane.

If you activate the **Along line** (active by default), the procedure triggered by the **Execute** button determines the position of the plane of the original line and, if the line does not lie in the plane, issues a message.

If you activate **Specify**, then the procedure starts requesting a point lying on the object and at the coordinate of the specified point in the current coordinate system sets the current level, which is shown in the level input field.

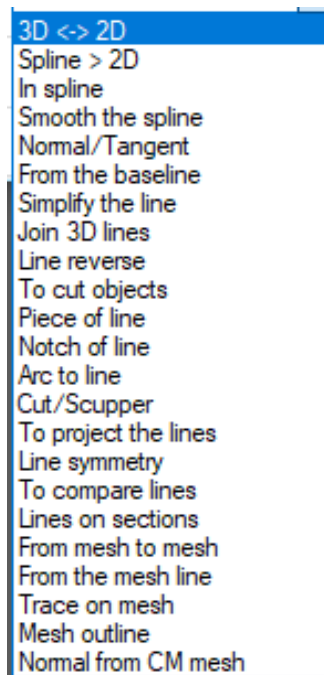


Figure 56

If you activate the switch **Specify when calculating**, the procedure started on the **Execute** button, in the process of calculation asks for a point on the object of the model by the coordinate of which in the current coordinate system, the current level is set and the line is generated.

In the **Shift** input field, you can set a level shift with a sign relative to the current level.

The line calculation process starts when you press the **Execute** key.

The **Spline > 2D** to convert splines into 2D lines, and the "B-Ship+ Work on model" window has the look shown in Figure 57.

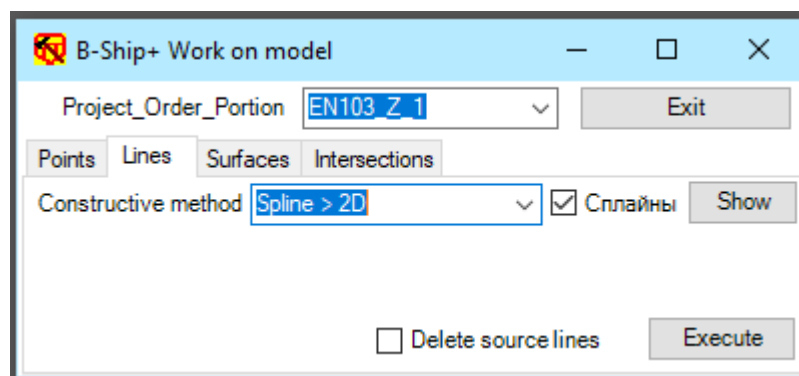


Figure 57

Only splines can be used as objects. If the original splinting is flat, the resulting 2D polyline will lie in the spline plane, if the spline is spatial, then a request is issued to the screen, shown in figure 58.



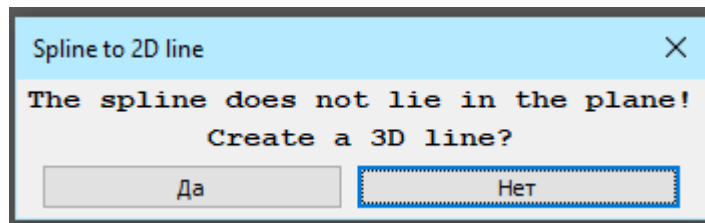


Figure 58

When you press the **Yes** button, there is a generation of 3D polyline.

The spline method is designed to convert lines into splines, and the "B-Ship+ Work on model" window has the view shown in Figure 59.

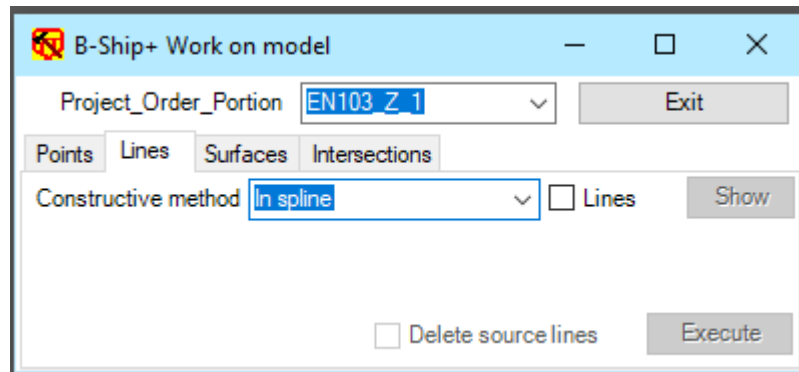


Figure 59

The way to build a smoother spline is designed to call the spline smoothing function and chart-toying, and the "B-Ship' Model Work window" looks like it's shown in Figure 60. Only splines can be used as objects. After selecting spline-type objects, you need to set the maximum point of departure in the **Max** input box when smoothing and start smoothing the **Smoothing** button.

The **Show** and **Remove** buttons are designed to construct a curvature graph.

With the "up-down" controls, **Scale** and **Frequency** set curvature graphs.

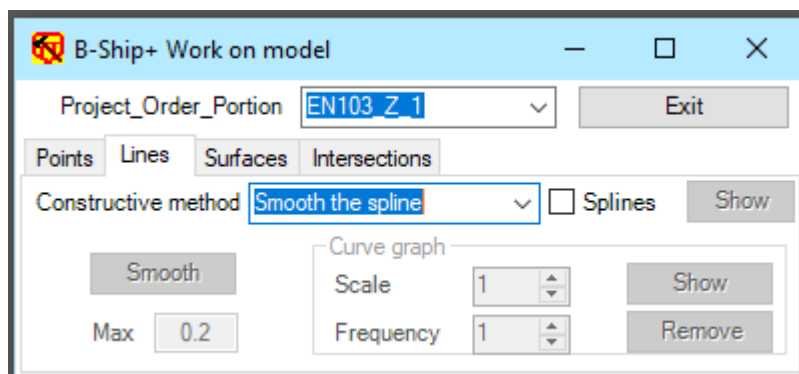


Figure 60

When choosing a way to build a **Normal/Tangent** window, " B-Ship+ Work on model " has the view shown in Figure 61.

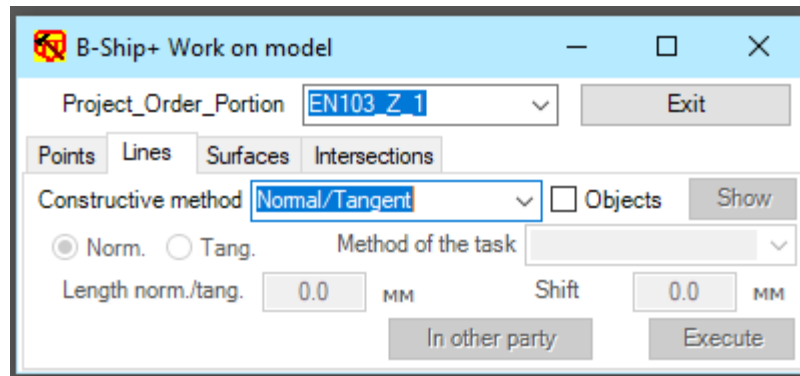


Figure 61

The construction method is designed to generate a normal/tangent to the specified objects, depending on the activation of the **Tang.** pointers or **Norm.** As objects selected in the model, when the **Objects** pointer is activated, there can be either lines or polygonal meshes. After selecting objects, the line must be specified **Method of the task** is written off (Figure 62).

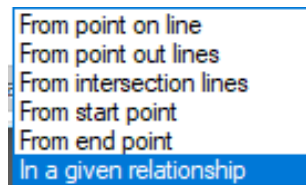


Figure 62

When selecting objects like the mesh, the **Method of the task** list will have the view shown in Figure 63.

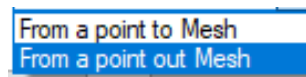


Figure 63

When you activate the way you determine **From a point to mesh**, you need to be normalized in the **Length norm./tang.** of the field. The buttons are then unlocked **In the other party** and **Execute**. By default, the point is built to the normal to the object.

The point is calculated on the **Execute** button and **In the other party**.

If you activate the way you identify **From point out Mesh**, the **Length norm./tang.** box will be locked, because the original point will be set off-grid, the length of the normal/tangent will be determined in a calculated way. The point is calculated by the **Execute** button.

When you activate **From point to line**, **From intersection lines**, **From start point** or **From end point**, the window has the view shown in Figure 64.

In the entry box, **Length norm./tang.** the length of normal or tangential accordingly is set. In the **Shift** input field, the distance along the line from the point on the line with the sign is set. The point is always searched in the direction of the line, if the value of the parameter is set with a mine, the point is taken against the direction of the line.

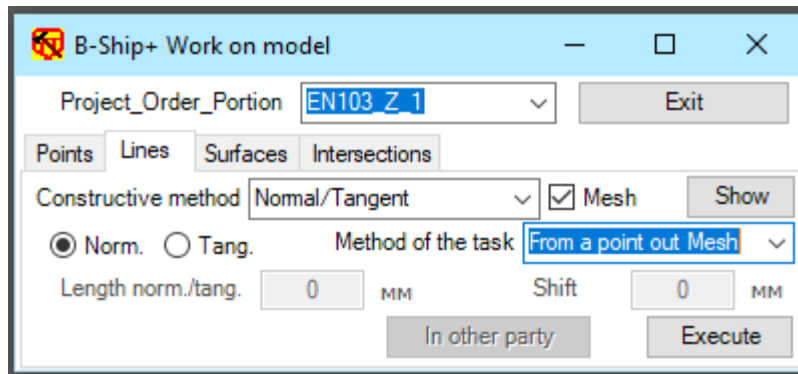


Figure 64

The calculation is made when you press the **Execute** button. To change the direction of the calculated segment, you need to press the button **In the other party**.

When you activate the job method **From point out lines** the line, the window has a view shown on Figure 65.

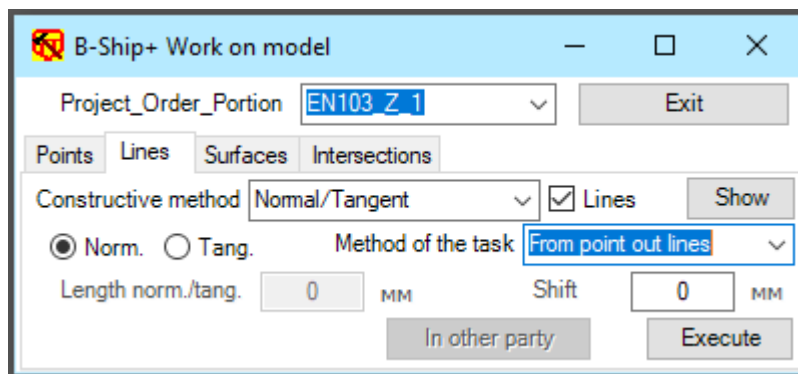


Figure 65

The field of entry **Length norm./Tang.** is blocked. The calculation is made when you click on the **Execute** or **In other party**. If the procedure cannot find a solution, a warning is issued.

When you activate **Method of task** for **In a given relationship**, the window has a view shown in Figure 66.

The starting point of the tangent or normal will be obtained at a distance from the starting point of the line obtained as a result of dividing the length of the line from the starting point to the end point of the line by the number equal to the amount of numbers set in the positioning fields multiplied by the number set in the first input field.

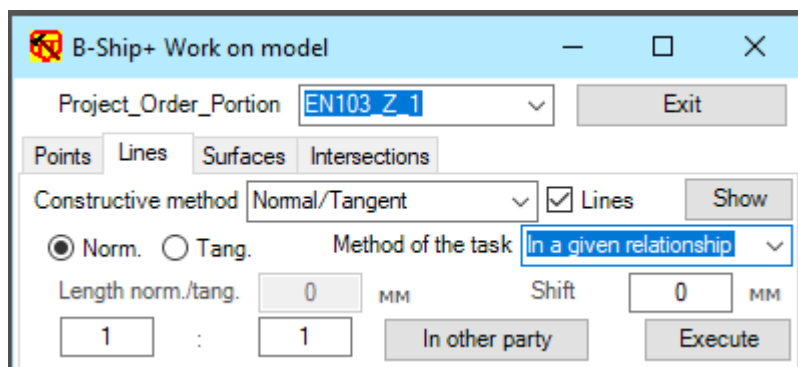


Figure 66

For example, if the first input field is set 1 and the second entry field is set 1, the line is split in half. If you enter 2 in the first entry field and the second one, the line is divided into three sections and the starting point of the normal is at the length of 2 sections from the starting point of the line.

When you press the button **In other party**, the starting point of normal will be at the length of the number of sites set in the second input field.

For all the ways to set the point, the calculation is done when you press the **Execute** button. Pressing the button **In the other party** changes the direction of the resulting line to the opposite. When choosing a way to build **From the baseline**, the "B-Ship+ Work on model" window has the view shown in Figure 67.

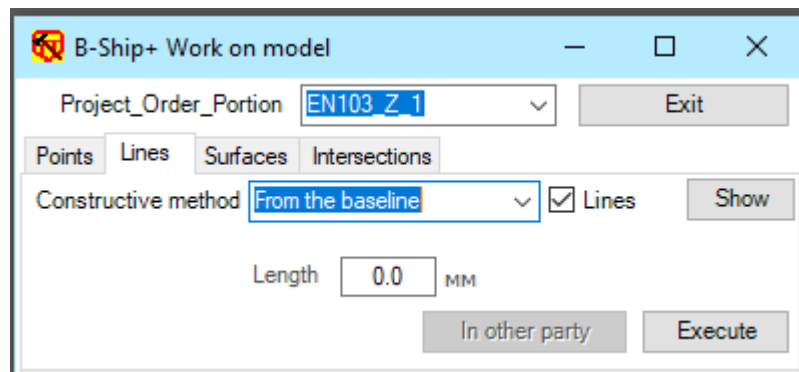


Figure 67

The base line build method is designed **From the baseline** on a set of lines that are selected in the model when the **Lines** pointer is activated, at a given distance, set in the **Length** input field, from the point of crossing the lines to the line that is chosen when you click on the **Execute** button. If you want to build a line on the other side of the base, you need to press the button **In the other party**.

When choosing a way to build **Simplify the line**, the " B-Ship+ Work on model " window has a view shown in Figure 68.

When the **Line** pointer is activated, the line selection procedure in the model is triggered.

When you press the **Execute** button, the simplification procedure for the lines starts. The problem was to find points lying on straight sections and to exclude them from the resulting line.

Activate the pointer **Delete source lines** results in the removal, after simplification, of the walkable lines.

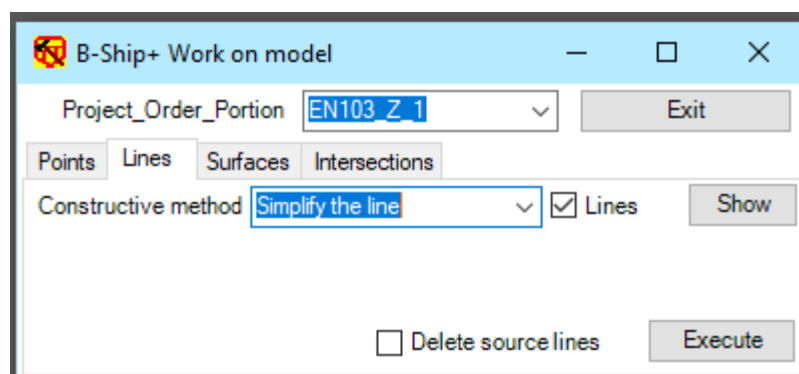


Figure 68

When choosing a way to build the **Join 3D lines**, the "B-Ship+ Work on model" window has the view shown in Figure 69.

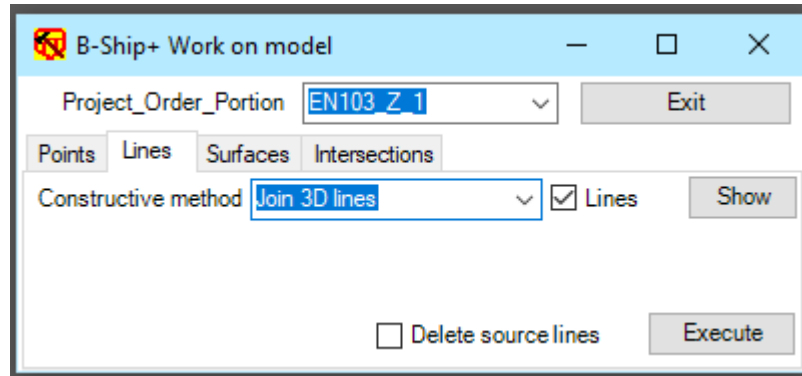


Figure 69

When the **Lines** pointer is activated, the line selection procedure in the model is triggered. When you press the **Execute**, the 3D line join procedure is started.

Activate the pointer **Delete source lines** results in the removal, after combining, of the original lines.

When choosing how to build the **Line reverse**, the "B-Ship+ Work on model" window has a look shown in Figure 70.

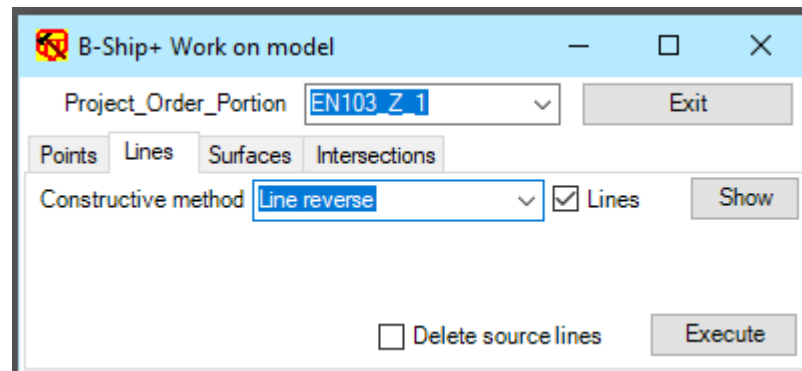


Figure 70

The **Line reverse** method is used to change the direction of the lines that are selected from the model when the **Lines** pointer is activated.

When you press the **Execute** key, you calculate the lines at which the starting and end points change places.

Activate the pointer **Delete source lines** results in the removal of the original lines.

When choosing a way to build **To cut objects**, the "B-Ship+ Work on model" window has a view shown in Figure 71.

The way to build **To cut objects** is used to trim lines, polygonal meshes, and solids that are selected from the model when the **Objects** pointer is activated.

**Warning:** As objects in an active switch, the **By track** can only specify lines and solids or only polygonal meshes, and with an active switch **Projection** only lines.

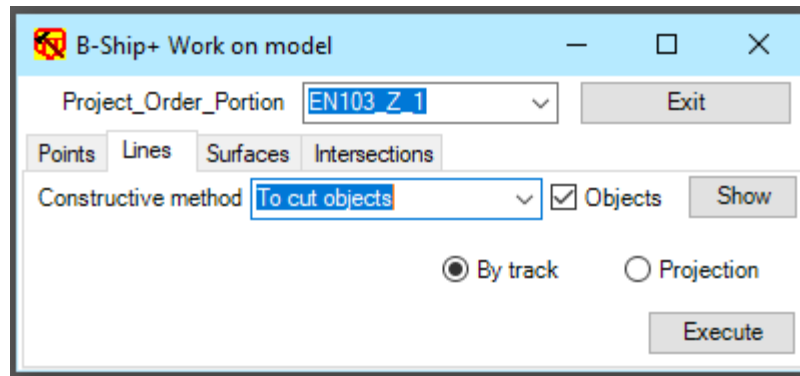
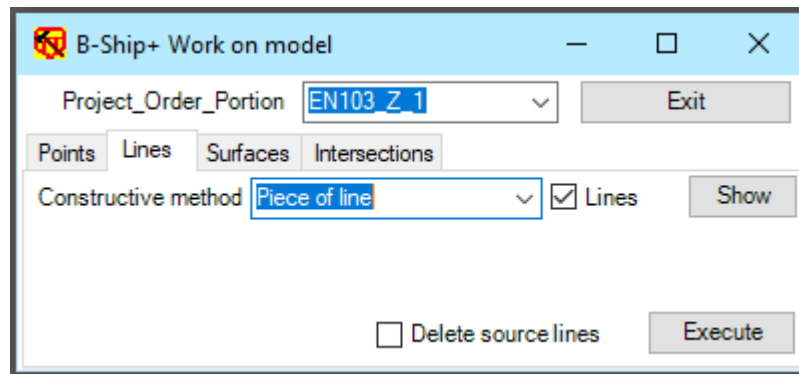


Figure 71

When you press the line, **Execute** with an active switch **By track** follow the process of cutting selected objects with a plane, the trail of which is set by two points, and when the **Projection** is active, the projection starts a procedure that in the command line gives a request to select a line, the projection of which relative to the current screen will be the surface of the intersection of the set of objects. After the procedure, you can remove parts of the lines that you don't need, and remove the trail line or projection.

When choosing **Piece of line**, the "B-Ship+ Work on model" model window has the view shown in Figure 72.



. Figure 72

The **Piece of line** method is designed to highlight the piece of line that is selected from the model when the **Lines** pointer is activated. Boundary conditions are requested when performing the procedure from the BricsCAD command line. If the query is specified - Points, the boundaries of the site are determined by the points specified, if you specify - Lines, then the lines indicated. The pointer **Delete source lines** line is designed to remove, if necessary, source lines from the model. The calculation is made when you press the **Execute** button.

When choosing **Notch of line**, the "B-Ship+ Work on model" window has the view shown in Figure 73.

The way to build notch of lines line is designed to be built on lines or on tracks that are selected from the model when the **Lines** pointer is activated, the notch is presented in the form of a .dwg file, at the intersection with the tracks - the lines that are indicated in the model during the cut procedure.

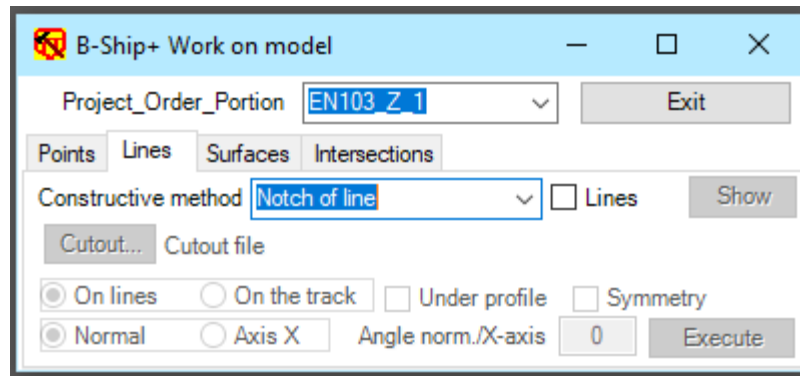


Figure 73

When you press the **Cutout...** button the window shown in Figure 74 pops up.

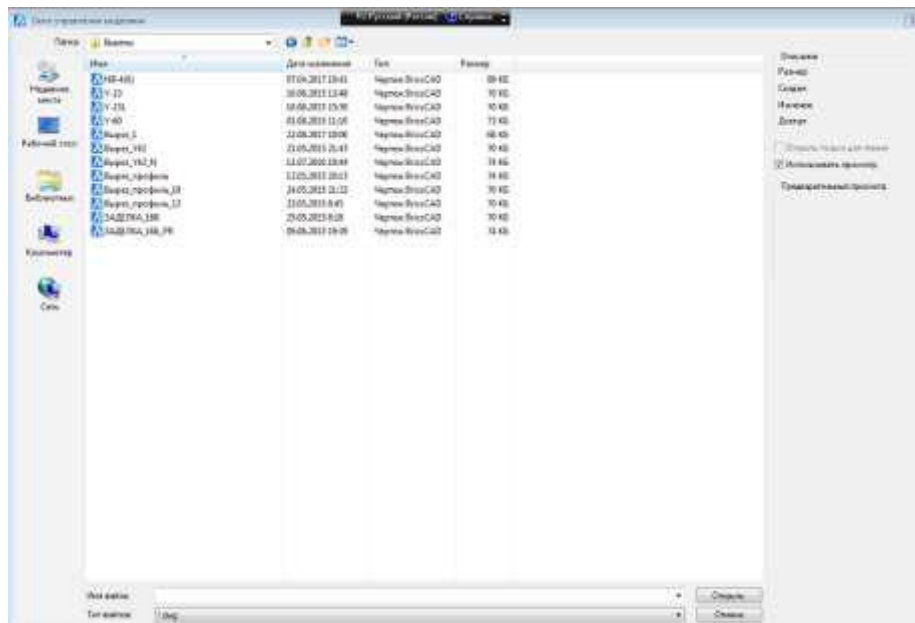


Figure 74

In this window, you need to set the access path, select the cutout file and press the **Open** button. After that, the "B-Ship+ Work on model" window will have the view shown in Figure 75.

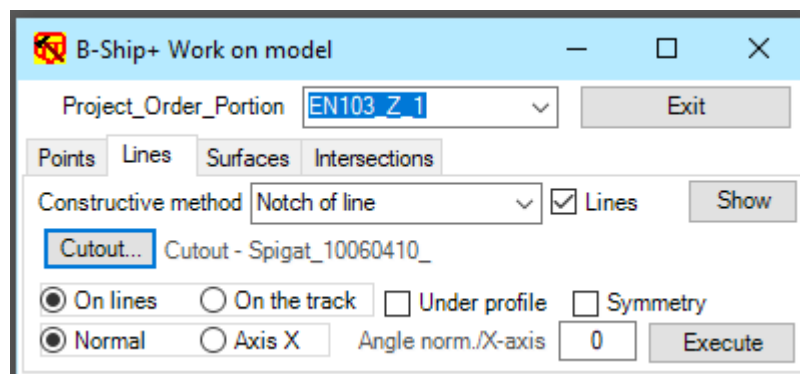


Figure 75

The activation of the switch **On lines** or **On the track** determines that group of lines to the co-tor is a cut-out. Activation of the **Normal** or **Axis X** switch define the condition of cutting binding - normal to the line or to the axis of the world coordinate system. In the **Angle norm/X axis** field, if necessary, you can set the angle of deviation from the base axis with a sign. If you need to take into account the stretch

of cutouts under the passage of the profile, you need to activate **Under profile**. When the pointer is activated, the cutout will be **Symmetry** relative to the base axis.

The calculation is made when you press the **Execute** button.

When choosing the way to build the **Arc to line**, the "B-Ship+ Work on model" window has a view shown in Figure 76.

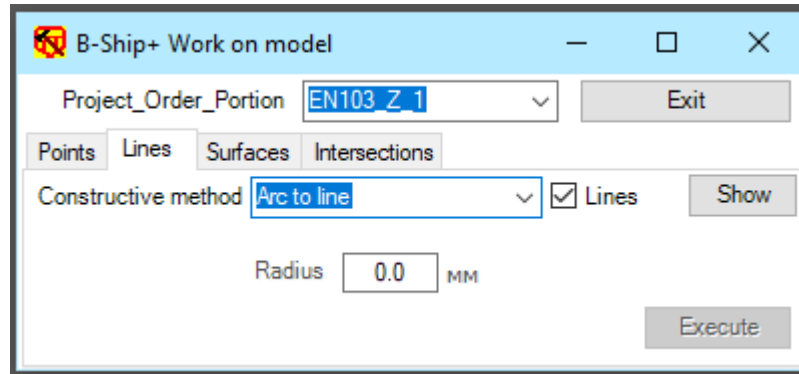


Figure 76

When the **Lines** pointer is activated, the line selection procedure in the model is triggered. Procedure can only be applied to flat lines. It is not recommended to apply to lines such as ellipses and rings.

When you press the **Execute**, you start the process of building an arc of a given radius from the points requested by the construction procedure to the illuminated line from a given set of lines.

When choosing a way to build a **Chamfer/Scupper**, the "B-Ship+ Work on model" window has the view shown in Figure 77.

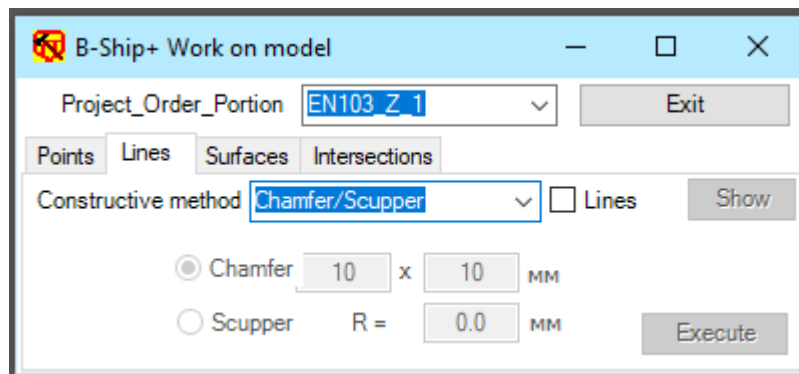


Figure 77

The **Chamfer/Scupper** method is designed to be built between the lines that are selected from the model when the **Lines** pointer is activated, depending on the active **Chamfer** or **Scupper** line on the parameters set in the fields. The calculation is made when you press the **Execute** button.

When choosing a way **To project the lines**, the "B-Ship+ Work on model" window has the view shown in Figure 78.

When the **Lines** pointer is activated, the line selection procedure in the model is triggered.

**Delete source** lines is designed to indicate the removal of the original lines.

The choice of procedure is set by **Projections** and **Lines** switches. You can generate either spatial lines for which two of its projections are set, or projections, if spatial lines are set. The type of projections is determined by the corresponding signs of **FR** (frame), **WL** (waterline), **BT** (buttock).



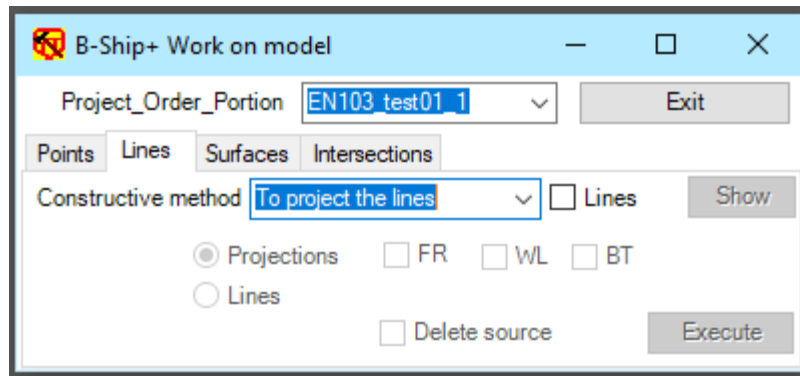


Figure 78

When you press the **Execute** button, the line-building process starts.

When choosing a way to build **Line symmetry**, the "B-Ship+ Work on model" window has the view shown in Figure 79.

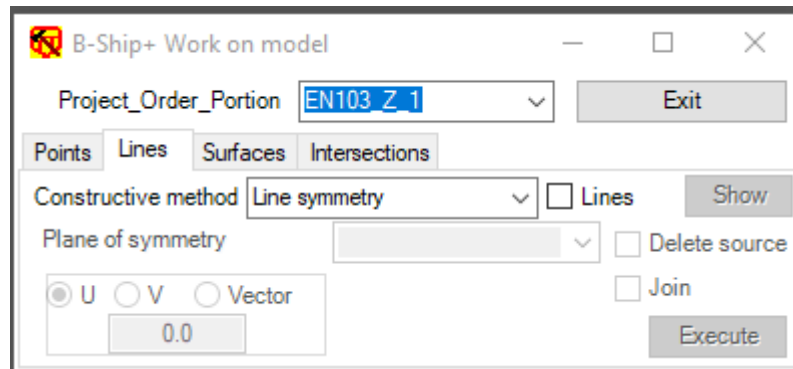


Figure 79

The method of building **Line symmetry** is designed to build symmetric lines for the lines selected in the model when the **Lines** pointer is activated. The construction of the symmetry plane is selected from the list shown in Figure 80.

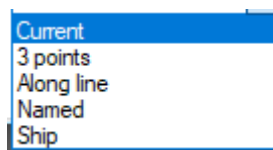


Figure 80

**Current** - plane is the current UCS.

**3 points** - to set the plane on 3 points in the model.

**Along line** - to determine the plane by the flat line indicated in the model.

**Named** - to select the plane named UCS. The list of named UCS is revealed when choosing this method.

**Ship** - the task of the plane of symmetry, using information from the table of swords by number and displacement respectively frame, waterline or buttocks.

**U** and **V** switches are designed to assign matching axes to symmetry in the chosen symmetry plane. The axis of symmetry can be shifted to the distance indicated in the type of input with the sign + or -.

The **Vector** switch allows you to set the axis of symmetry by showing 2 points on the symmetry plane in the model when calculating.

When you activate the pointer **Delete source** starting lines are being removed.

When the index is activated, **Join** the original and symmetrical lines in one.

The symmetry procedure starts by pressing the **Execute** button.

When choosing a way to build **To compare lines**, the "B-Ship+ Work on model" window has a view shown in Figure 81.

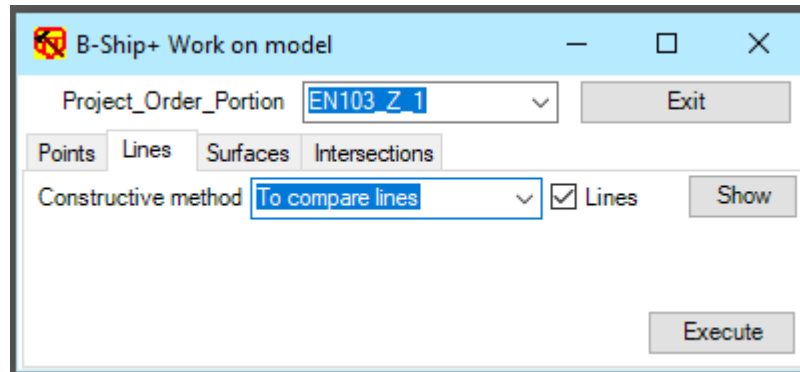


Figure 81

When the **Lines** pointer is activated, the line selection procedure in the model is triggered. It is necessary to specify two lines for comparison.

The **Execute** button is calculated and the line draws a point as far away from a similar point on the other line as possible, and in the BricsCAD command line is issued - "*Maximum distance at the specified point =*" XXX, where XXX is a value in mm.

When choosing how to build **Line on sections**, the "B-Ship+ Work on model" window has the view shown in Figure 82.

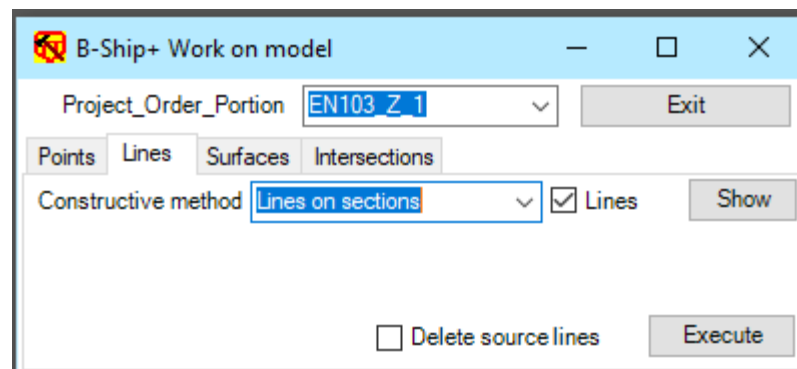


Figure 82

When the **Lines** pointer is activated, the line selection procedure in the model is triggered. It is necessary to specify the lines that need to be moved to a set of flat lines (e.g. frames). The pointer **Delete source lines** is designed to indicate the removal of the original lines.

When you click on the **Execute** button, the calculation process that asks in the command line starts ->*Specify the section to which you want to transfer the line:*

When choosing how to build **From mesh to mesh**, the "B-Ship+ Work on model" window has the view shown in Figure 83.

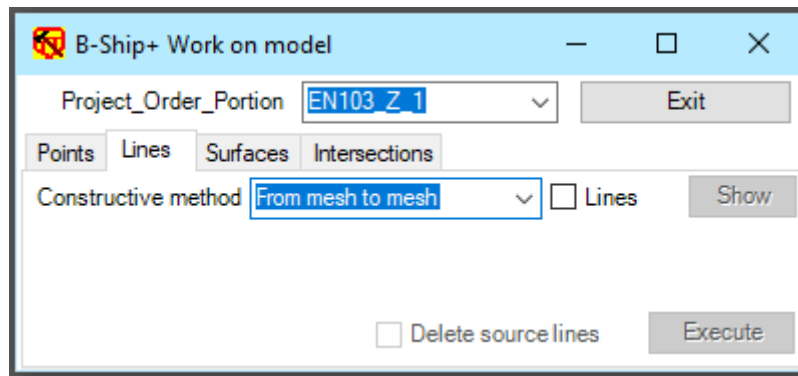


Figure 83

The way to build **From mesh to mesh** is designed to move the line from one mesh to another. Mesh should have the same M and N dimensions, which are selected when the **Lines** pointer is activated, should have dots lying on the edges of the mesh. When you click on **Execute**, perform the calculation procedure to request the original mesh and the mesh for the result.

When choosing how to build **From the mesh line**, the "B-Ship+ Work on model" window has a view shown in Figure 84.

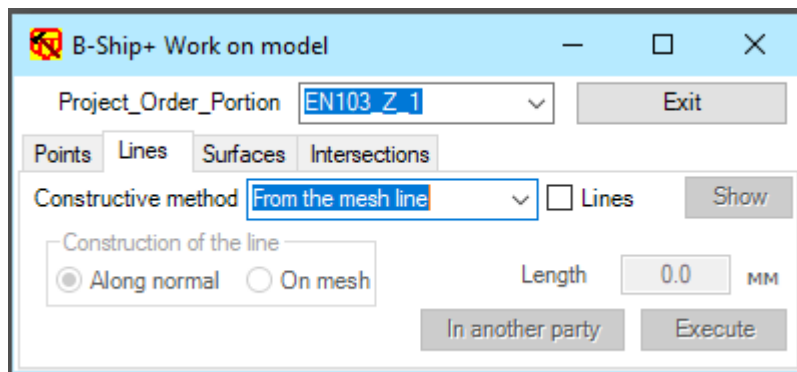


Figure 84

The method of **From the mesh line** is designed to calculate the line on a given in the entry field **Length** from the line on the normal to the mesh is set if the **Along normal** is activated, or along the direction of the N mesh (MxN), if **On mesh** is activated.

When the **Lines** pointer is activated, the process of selecting the line lying on the tee is started.

When you click on the **Execute** button, the mesh is requested and the line is triggered. If you need to build a line on the other side, you need to press the button **In other party**.

When choosing how to build **Trace on mesh**, the "B-Ship+ Work on model" window has a view shown in Figure 85.

The way to build a **Trace on mesh** is designed to calculate the intersection points of the line with the edges of the mesh and form a new line with the inclusion of all points of intersection. The original line is supposed to lie on the surface of the mesh.

When the **Lines** pointer is activated, the procedure for selecting model lines is over.

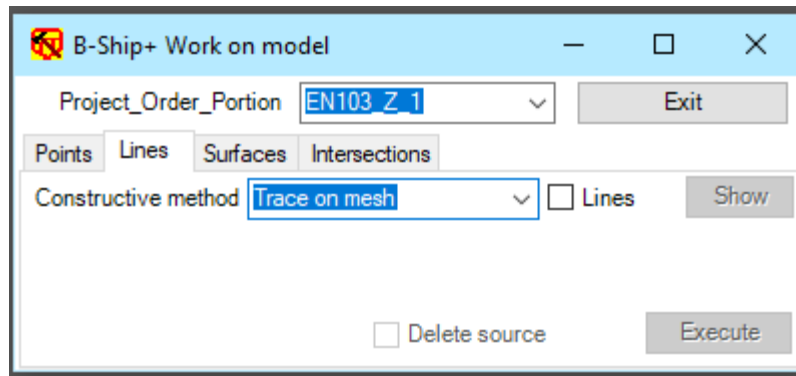


Figure 85

The pointer **Delete source** need to be activated if the original lines need to be removed.

When you press the **Execute** button, the calculation process starts, which gives you a request about the mesh in the model.

When choosing how to build **Mesh outline**, the "B-Ship+ Work on model" window works on a model, which is shown in Figure 86.

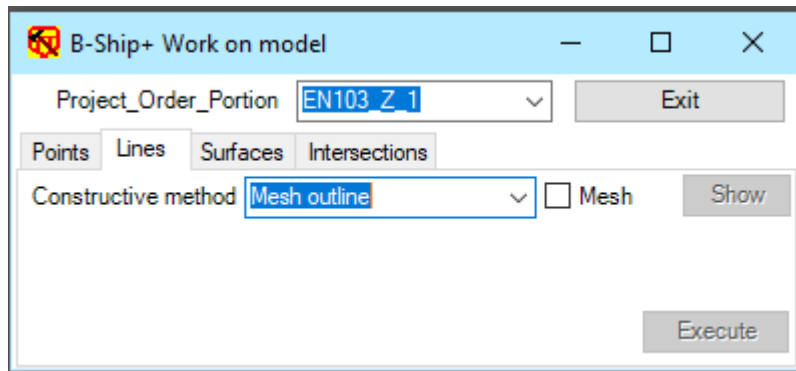


Figure 86

The way to build the **Mesh outline** is designed to build the contours of mesh in the form of spatial lines. According to the **Mesh**, the process of selecting mesh in the model is started.

When you press the **Execute** button, mesh contour lines are built.

When choosing a way to build **Normal from CM mesh**, the "B-Ship+ Work on model" window has the view shown in Figure 87.

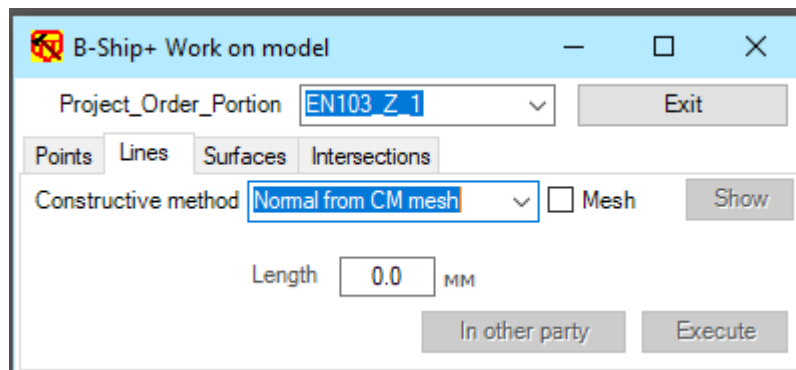


Figure 87

The way **Normal from CM mesh** is built is designed to calculate and construct the normal set in the Length input field from the center of the mass of the mesh.

When you press **Execute** button, you ask for a mesh choice and you build a normal, when you press the button In other party, the normal construction goes the other party.

#### 5.4. Surfaces tab

When you activate the **Surfaces** tab, the "B-Ship+ Work on model" window has a look that is still in figure 88.

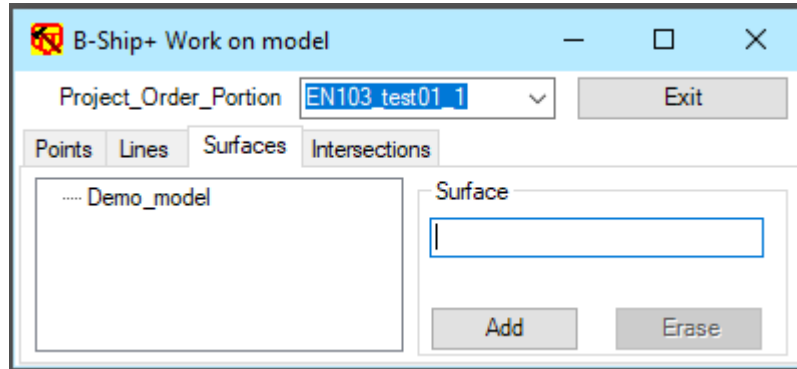


Figure 88

In the tab window there is a surface tree window and a **Surface** group with a surface name input box and a **Add** and **Erase** button. The **Add** and **Erase** buttons are designed to create or remove, respectively, named items in tree surfaces.

In the input box, we name the surface and press the **Add** button. Starts procedure forming an item with a given name in the tree surfaces of the model. Under the item with the name of the surface in the tree are created automatically three branches – **Shaping lines** with under-branches **Longitudinal** and **Transverse**, **Mesh** and **Stretching** marks.

When you select surface objects in the tree, the "B-Ship+ Work on model" window has the view shown in Figure 89.

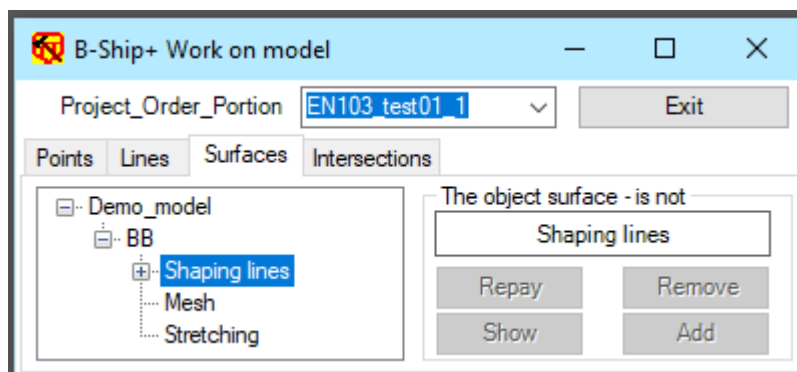


Figure 89

In the right window of the **Surface** tab there is an inscription for the object chosen in the tree: **The object surface – is not** or **The object surface – is**.

**Warning:** **Shaping lines** are divided into **Longitudinal** and **Transverse** for form of polygonal mesh. All surface objects, if available, can be removed, displayed, or removed from the appropriate buttons.

**Warning:** According to the **Remove** button, objects from the model are not removed, but removed from the corresponding object of the surface tree.

When you select **Mesh** and click on the **Add** button in the right surface tab, the list of ways to create a mesh surface is unfolded, shown in Figure 90.

- Check framework
- Mesh framework
- Three angles
- Longitudinal
- Transverse
- Mesh
- Equidistant
- Transformation
- Piece mesh
- Split the mesh
- Pipeline
- Mesh of lines
- Sweep
- Profile
- Goffer
- Join meshes
- Contour surface
- Polygon mesh
- Region

Figure 90

Exit from the list is indicated by any item in the tree surface.

Choosing the **Check framework** list triggers a check-up procedure for crossing longitudinal and transverse formations. If all the intersections are defined, you will receive the message shown in Figure 91.

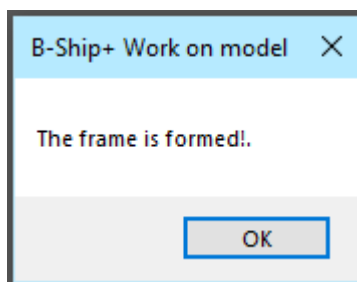


Figure 91

Otherwise, a window shown in Figure 92 will pop up on the screen.

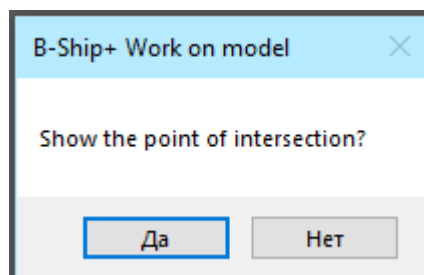


Figure 92

If you press the **Yes** button, you'll draw the points you find. They can determine which lines do not intersect with each other and then take the necessary steps to ensure the intersection of lines.

Points can be removed either by "rollback" or by deleting points in the **Point** tab.

Choosing in the line **Mesh framework** list triggers the process of forming Coons-like mesh on the grid of forming lines.

Warning: Coons surfaces do not unfold and are designed to form sections to further build mesh on sections.

Choosing in the line **Three angles** list triggers the process of forming a mesh by three forming, and you need to specify them when requesting in such a way that the angle is formed by longitudinal lines.

Choosing in the line **Longitudinal** list triggers the process of forming a mesh on a grid of longitudinal lines, and when selecting in the list lines Transverse on the grid cross lines are appropriate.

Choosing in the line **Mesh** list is designed to be part of the surface of the finished network (all other ways introduce networks to the surface automatically).

Selecting in the list of line **Equidistant** starts the procedure of forming a network at a given distance and in the given direction.

The selection in the line **Transformation** list is designed to change the direction of the mesh to the opposite.

Selecting in the line **Piece mesh** list triggers starts the procedure for allocating a section on the network.

Choosing a line **Split the mesh** starts the process of cutting the mesh either on a two-point trail or on a line pre-generated on the network.

Choosing a line **Pipeline** list triggers starts the process of forming a mesh for the pipe.

Selecting the **Mesh of lines** list from the lines allows you to form a mesh from a set of lines with a set of points in the N direction.

Selecting in the **Sweep** line list triggers the process of forming a sweep at a specified point in the model.

When you select in the **Profile** line list, the "B-Ship+ Work on model" window has a look that is still in Figure 93.

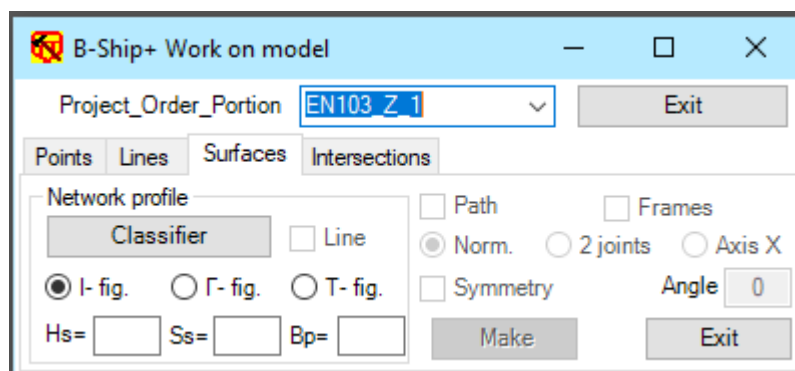


Figure 93

In this window, you need to set the profile parameters, the conditions of its installation in relation to the spank, a set of tracks (longitudinal spatial lines) on which the networks will be built - one on the profile wall, the other on the shelf and a set of spans (flat lines).

Profile view is set by switches:

**I**-shaped - only the wall mesh is built,

**Γ**-shaped or **T**-shaped - a wall mesh and a shelf mesh are built.

When the index is activated, the Line will build a mesh along the profile section.

**Hs** input field sets the height of the profile wall, the **Ss** input box sets the thickness of the profile wall, and the **Bp** input box sets the width of the shelf. All sizes are set in mm.

If the width of the shelf is not set, the mesh on the shelf is not built at any kind of profile.

If the **T**-shaped profile is defined, the thickness of the wall with the sign can shift the shelf network relative to the wall.

When you press the **Classifier** button, the "B-Ship+ Work on model" window will have the view shown in Figure 94.

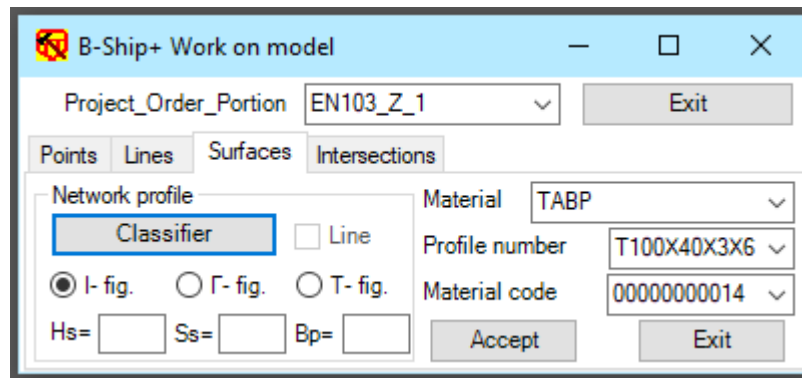


Figure 94

In the drop-down list **Material** you need to choose the type of profile, in the drop-down list profile number you need to choose the **Profile number**, and in the drop-down list the code material you need to choose the code of material by the classifier of materials.

The **Accept** button will be sent to the window shown in Figure 93. This window needs to activate the appropriate profile type switch, or **Line**.

After setting the parameters for building a profile mesh, the **Path** pointer is unlocked, which activates the selection procedure in the spatial path line model, unlocks the **Frames** pointer, which activates the selection procedure in the frame line model, and unlocks the buttons of the profile wall-**Norm.**, **2 joints**, **Axis X**, and **Angle**.

When the **Norm** switch is activated forming mesh are built normally to the frame section at the intersection of the frame and the path. If the angle is set, the normal turns to a given angle. When the **Axis X** switch is activated, the forming mesh are built at a given angle to the X axis of the world coordinate system. When setting the terms **2 joints** first the forming mesh are built on the normal to the frame, and then the joint forming turn either into the horizon, or vertically, or at a given angle. At the same time, all forming mesh will be rotated so that the transition from one joint to another joint was smooth.



When the pointer **Symmetry** is activated, the profile mesh will be symmetry from the base axis.

When you press the **Make** button, the process of forming profile mesh, either profile walls or profile walls and shelves, is started.

When selecting the **Goffer** line (Figure 90) in the list, the procedure for forming a surface mesh on a pre-set flat corrugated line in the direction of the perpendicular plane of the corrugated line is launched.

When you select in the **Join meshes** list, you start the process of forming an online mesh on a set of on-demand lines in the network command line. It is important to keep in mind that the size of the mesh on the connected edge should be the same.

When you select a line **Contour surface** in the list, the surface moulding procedure is launched to form a mesh of these lines.

When you select a line **Polygon mesh** in the list, the polygonal network starts the process of re-distribution of the multi-faceted mesh to the polygonal mesh.

When you select in the **Region** list, you start to override the region created by BricsCAD to the mesh.

When you select the **Stretching** in the tree and press the **Add** button on the right side of the surface tab, the list of ways to create a stretch of surface is unfolded, shown in Figure 95.

Building extension  
From model to extension  
From extension to model

Figure 95

Exit from the list is indicated by any item in the tree surface.

When choosing the method of **Building extension**, the procedure of forming a stretching along these lines of zero buttocks and a set of frames of the model is started.

When choosing the **From model to extension** for stretching, the procedure of transferring the model's reference lines to stretch is started.

When choosing the **From extension to model**, starts the procedure of transferring stretch lines to the model.

## 5.5. Intersections tab

When activated, the **Intersectios** tab the "B-Ship+ Work on model" window has a view shown in Figure 96.

Exit from the window the "B-Ship+ Work on model" is on the exit button **Exit**.

The original state of the window - everything is locked except the buttons **Set (1)**, **Set (2)**, **Add (1)** and **Exit**.

When you press the **Set (2)** button, the number will change to 2 in the labels on the buttons. When you press the **Set (1)** button, the number will change to 1 in the labels on the buttons.

In the fields under the Set buttons, a message is displayed about the presence of model primitives in a appropriate set.

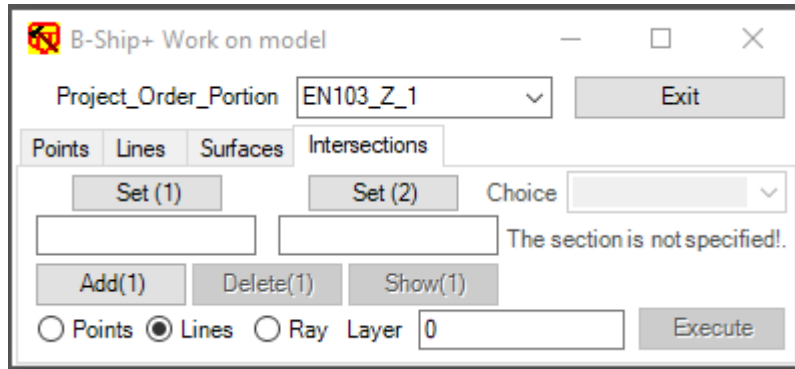


Figure 96

When you press the **Add** button, you start selecting objects from the model with the formation of a set of objects, and the corresponding field includes an inscription - **Set of primitives**.

When you press the **Delete** button, you can remove the primitives from the set, and you can delete all primitives or models on request.

When you press the **Show** button, the primitive lighting procedure is started.

The **Intersections** tab is designed to cross the primitives of two sets between each other or to cross the primitives of the same set with the plane, the way the selection is **Choice** list.

If two sets are set, the **Execute** button is unlocked and when it is pressed, the procedure of crossing the primitive sets between the sets is called.

If the model objects added to one of the sets appear **Set of primitives**, the **Choice** list is unlocked, the **Execute** button is blocked, the window will have the view shown in Figure 97.

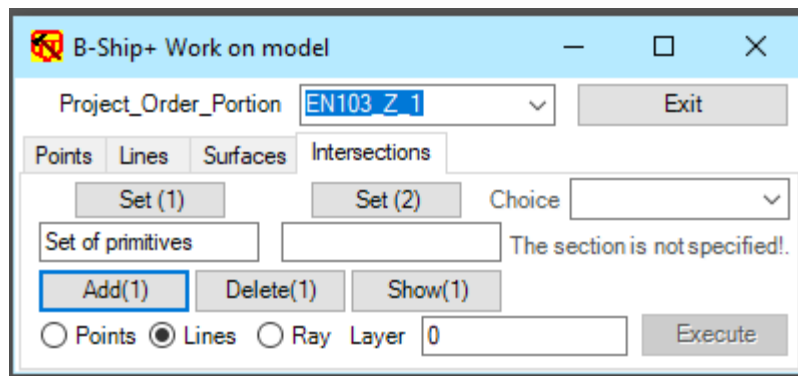


Figure 97

To determine the plane/planes crossing with a set of primitives, you must select the plane from the **Choice** list shown in Figure 98.

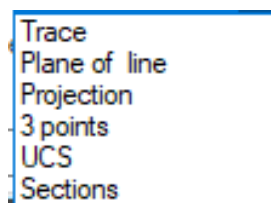


Figure 98

The plane can be set as a **Trace** through 2 points in the model, while the plane of the cross-section is perpendicular to the plane of the screen. You can set the plane as a **Plane of line**, the choice of which is made in the model, and the line should be flat. You can set a plane like a **Projection** in a model on the plane of the current UCS. The plane can be identified through **3 points** in the model. The plane can be identified as the plane named UCS in the model, from the list which is revealed when pointed at the **UCS** line. You can set sections on the spatula table.

When you choose how to build a **Sections** plane, the "B-Ship+ Work on model" window will have the view shown in Figure 99.

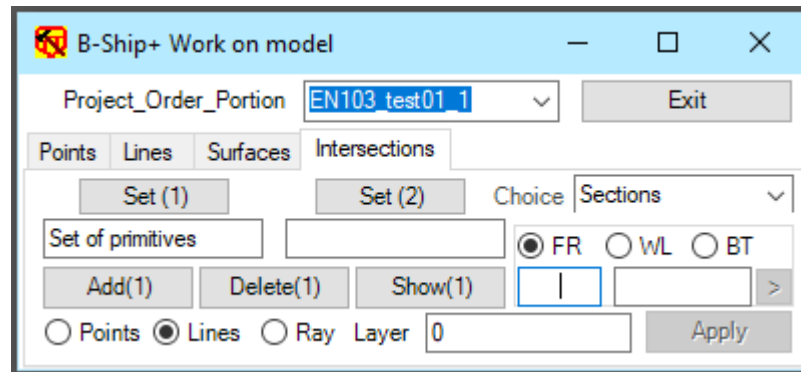


Figure 99

It is necessary to install the switch of **FR**, **WL** or **BT** and enter the input fields of the appropriate number and offset with the sign.

After entering the offset and pressing the **Apply** button, the parameters of the corresponding plane will be displayed in the window.

You can use a point in the model to get the number and shift the plane. The point selection process is run by a double click in the number box.

After entering the position of the first section, the button ">" is unlocked and when you press it, you can set the second section position for the section group, the "B-Ship+ Work on model" window will have the view shown in Figure 100.

You can use a point in the model to get the number and shift the plane. The point selection process is run by a double click in the number box. When you press the button "<", you can return to the first section.

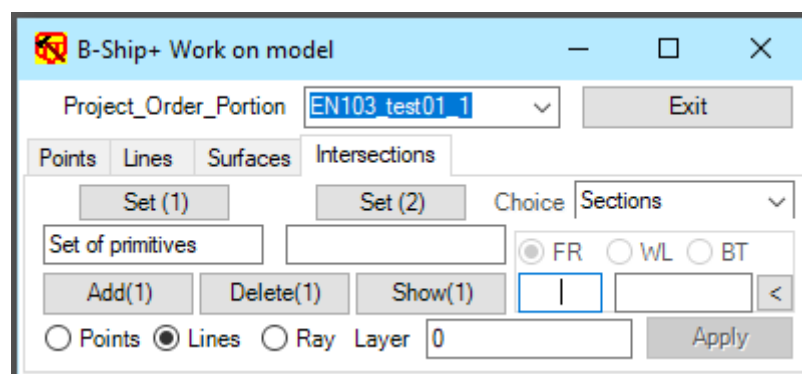


Figure 100

After entering the position of the second section, the button "<" changes to the button ">" and after clicking on it the window "B-Ship+ Work on model" on the model will have the view shown in Figure 101.

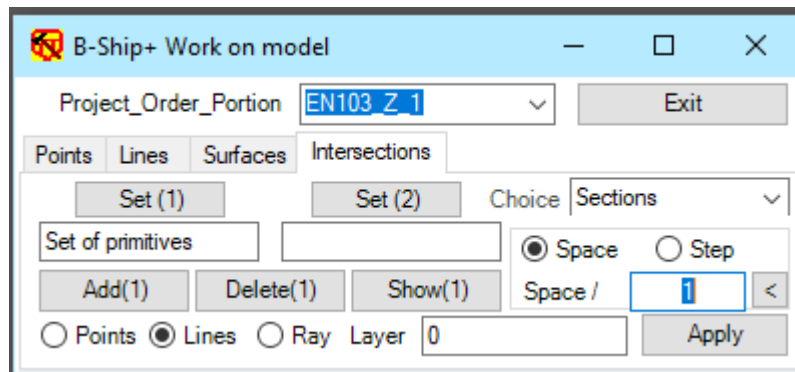


Figure 101

You need to activate either the **Space** switch if you want to set the split of the space by the number set in the input box, or the **Step** set in the input field. After setting the number in the input box and pressing the **Apply** button, a message is displayed in the window about the assignment of the section group.

If the section/sections is defined, the **Execute** button will be unlocked and clicking on it triggers the process of crossing a set of primitives with the plane/planes of the sections.

**Warning:** When selecting objects in a model, you must respond to requests in the BricsCAD command line. Procedures are looped to determine several similar flat-sections at once.

**Points, Lines** and **Ray** switches determine the outcome of the cross-section procedure.

In the **Layer** input field, the name of the layer that is assigned to the result is set. When pointing to the input field, the window shown in Figure 102.

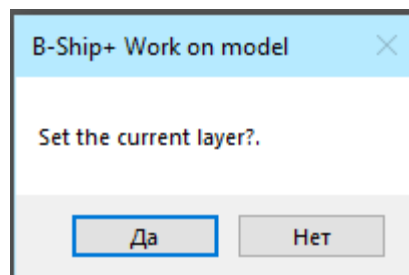


Figure 102

In the answer **Yes**, the name of the current layer is transferred to the layer name field. New layers can be entered into the layer input field, and it is advisable to form a layer name based on the name-forming rules adopted in the **B-Ship+** system.

The result of the crossing is determined by the switches - **Points, Lines** or **Ray**.

The crossing procedure starts by pressing the **Execute** button.

## 6. MODEL PARTS

### 6.1. Command window interface **MODEL PARTS...**

The command's software package **MODEL PARTS...** allows you to generate in the environment of the model file:

- Flat parts;
- flat blanks (sweep) of bent parts;
- details from the profile;
- knee, brackets;
- belts;
- multiple details.

Figure 103 shows the dialogue window "B-Ship+" (the way to an active project)", called-my command **DETAILS MODEL....**

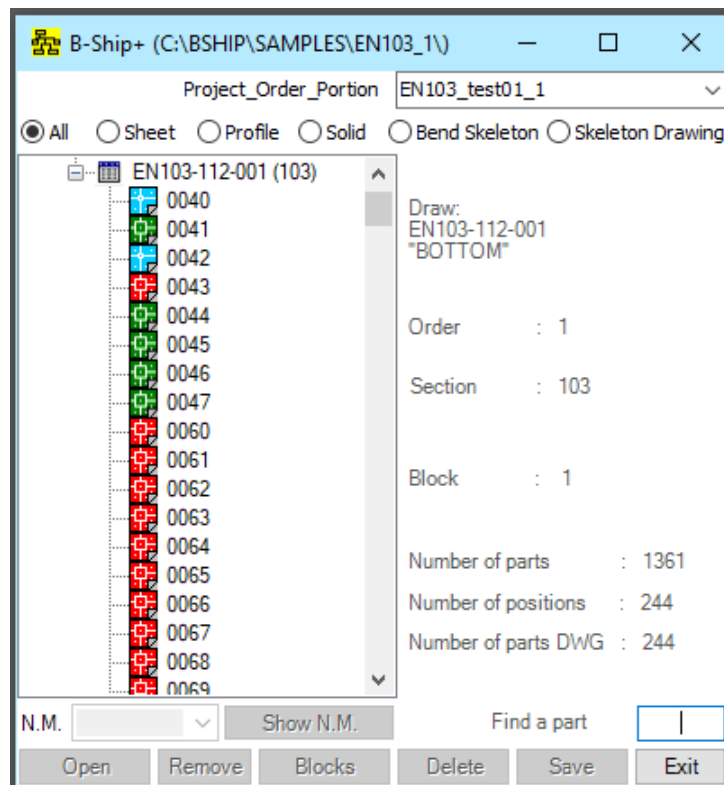


Figure 103

This window contains:

- a drop-down list **Project\_Order\_Portion** (allows you to choose which of the database projects to activate);
- switches database objects;
- specification tree window of active project;
- settings window or view window;
- functional buttons.

The window contains a window folding/unwrapping button for convenience when working in a drawing environment.

At the bottom left of the window is the input box **Find a part** to quickly search for a given position in the tree, you need to enter the number and click Input. If the mouse is "double clicked" in the input box, the window will have the view shown in Figure 104.

In **Selecting parts of the drawing** window, you can choose in the respective lists depending on the material **thickness/profile number** and the **Grade** and click on the **Chose** button.

**Warning:** There are empty lines in the **thickness/profile number** and the **Grade** lists, the choice of which means that the value of these props can be any when selecting in the database.

After rebuilding, the drawing tree will contain only parts with a given material.

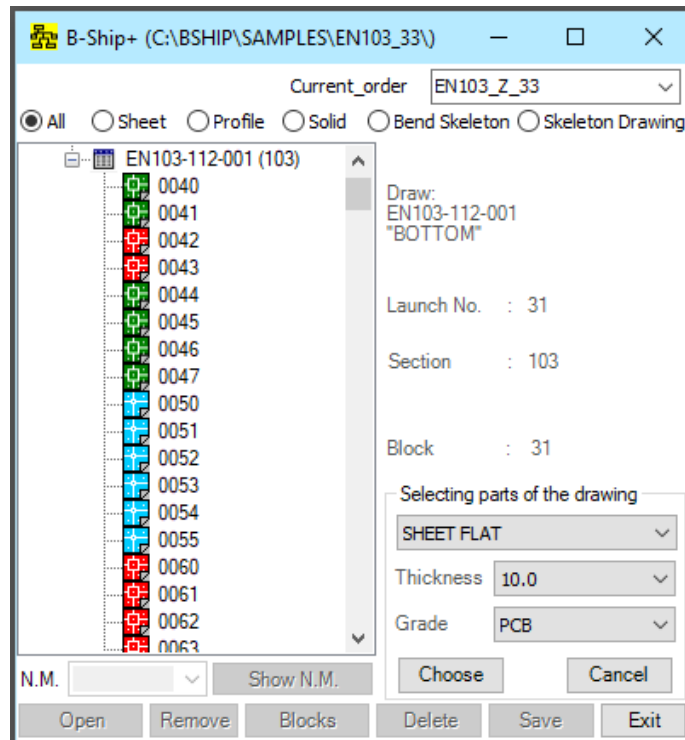


Figure 104

The **Exit** button is unlocked and when it is pressed there is an exit from the window.

When you select the project specifications in the tree, the right window shows the project details, as shown in figure 105.

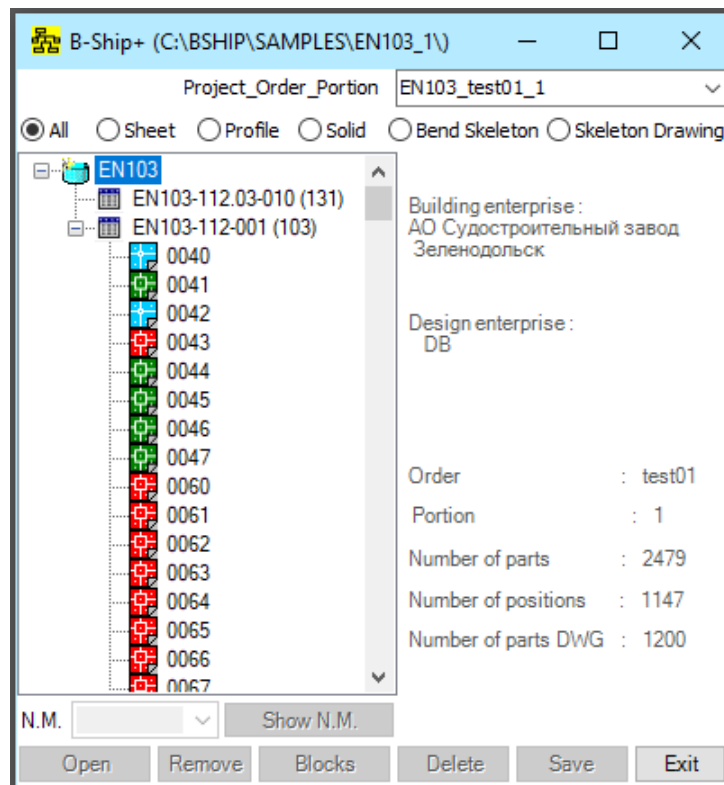


Figure 105

When selecting the specification details of the drawing in the tree, the details of the drawing are shown in the right window, as shown in Figure 106.

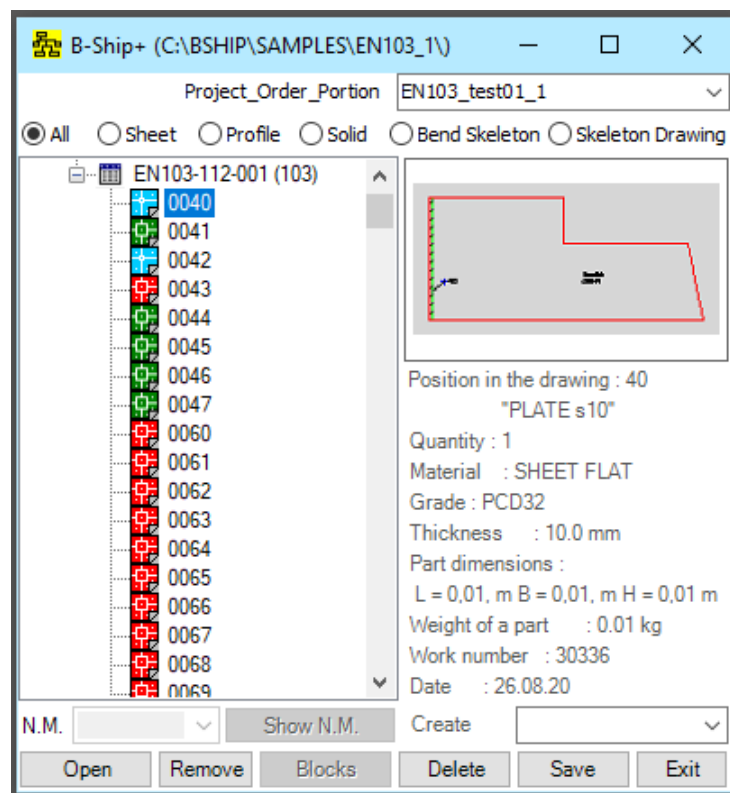


Figure 106

To select objects shown in the tree pre-sorted by type, you need to activate the switch: **All**, **Sheet**, **Profile**, **Solid**, **Bend Skeleton** or **Skeleton Drawing**.

The **All** switch is designed to select in a tree from the database of all the details of the specified drawing.

The switch **Sheet** is designed to sample only parts from the sheet roll.

The switch **Profile** is designed to select parts from the profile roll.

The switch **Solid** is designed to select parts that have solid pre-setting.

The switch **Bend Skeleton** is designed to select parts of a .dwg-type part in the form of a flexible frame.

The switch **Skeleton Drawing** is designed to sample details of those dwg drawings of flexible snap patterns.

If there is a .dwg file of parts in the tree database, the pictogram parts are colored in blue, if the part is not recorded in the **PART** module, painted red if the part is written in the **PART** module, is painted green if the part is cut, and in the absence of a .dwg file, the pictogram of the part is presented as an empty square.

If a .dwg-type file of parts is created in a database, the view shows the view of the part.

If the part is cut, the **Delete** and **Save** buttons are blocked, the **Create** list is not available, and the **N.M.** list shows the nesting maps and when you click on the **Show N.M.** button, specified in the list the map is set on the screen. When you press the same button, but with the inscription **Remove N.M.**, the card is removed from the screen.

If the cut part needs to be corrected, it must be removed from catalog **Dwg** project or temporarily renamed manually.

To install the parts selected in the tree on the screen you need to press the **Open** button, and when you click on **Remove** button is removed from the screen.

If the part is not cut, the **Delete** button is unlocked and the list **Create** is available. When you click on the **Delete** button, the .dwg file is removed from the database.

**Warning:** To update the specification tree, when you change the drawing database, you must specify another drawing in the mouse specification tree for the new loading of the drawing specification tree.

If you want to do the right-hand work with the drawing group, you need to specify either the drawing or the part in the mouse's "right button" tree. At the same time, the project details window will have the view shown in Figure 107.

In the tree there were additional pictograms in the form of empty squares. When you click a mouse into a square, you'll see a mark.

Performing procedures when you click on the **Open**, **Remove**, **Delete**, and **Save** are focused only on a group of marked parts.

When you re-point the "right button" of the mouse in the tree, either the drawing or the details of the pre-executive pictograms for the group sample are removed.



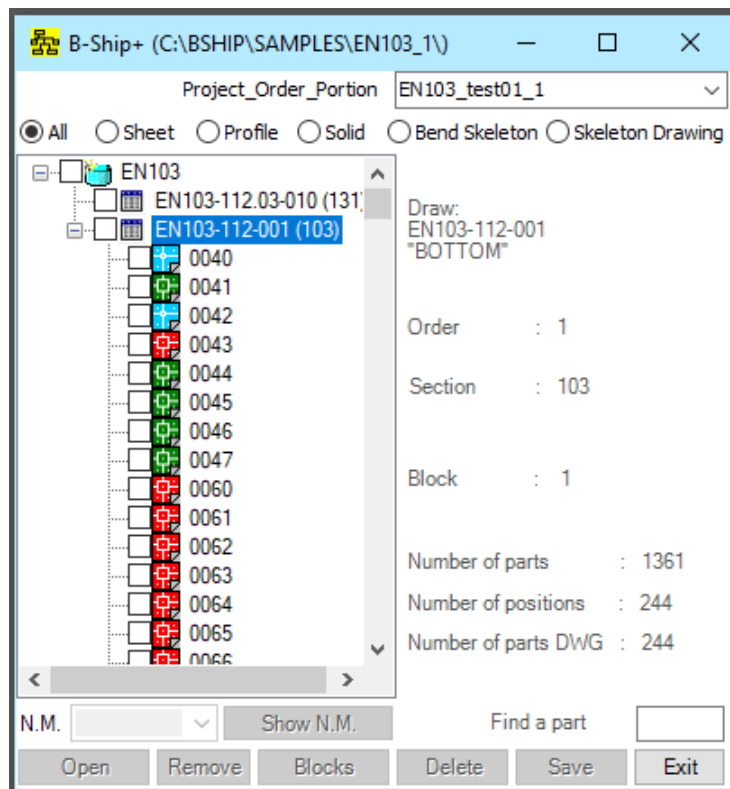


Figure 107

A revealing list of creation modes for working with detail, shown in Figure 108, allows you:

- **Model part** - to generate new parts by model form from the primitives of the model;
- **Section of model** – create temporary sections of the model;
- **Sim./Rot. section** - perform symmetry and rotation of the section;
- **Undo section** - return to the original state of the model.

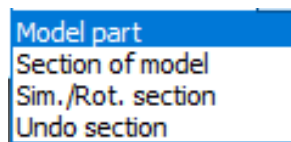


Figure 108

When you specify the **Section of model**, the procedure for selecting a flat-section primitive model and forming a custom system of coordinates of that section is triggered. In the process, you must respond to requests in the BricsCAD command line.

**Warning:** The procedure checks whether the surface primitives lie in the UCS plane and, if necessary, form a projection of primitives on this plane.

When you specify the **Sim./Rot.**, starting the procedure of rotating or symmetry flat-section primitives.

When you specify the **Undo section**, starting the procedure of rolling back and returning the model to its original state is started.

When you specify the **Model part**, a new list is displayed in place of the list, shown in Figure 109.

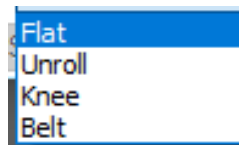


Figure 109

When listed in this list, **Flat** is reformed as shown in figure 110.

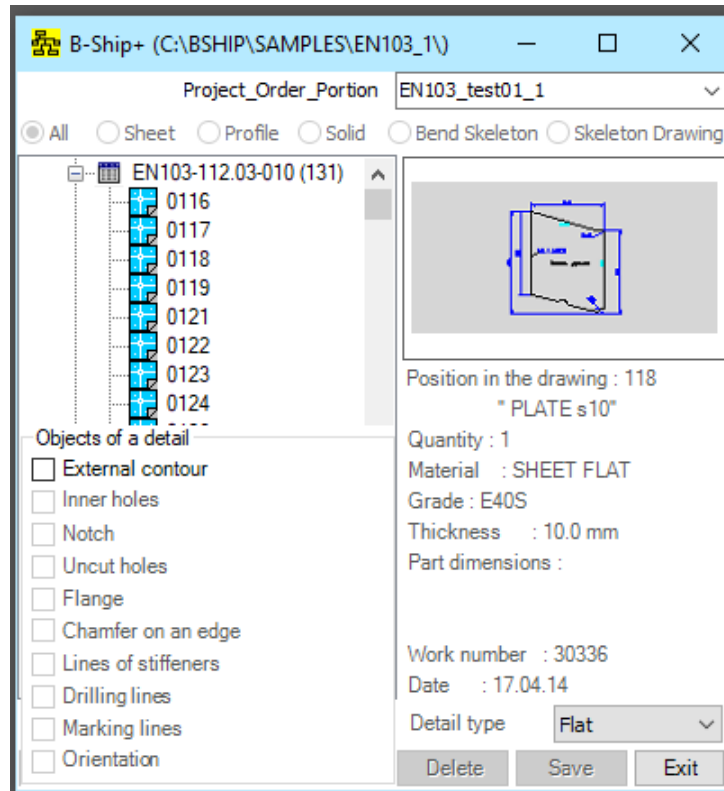


Figure 110

In this window at the bottom right, pop up window **Objects of a detail**, in which all pointers are locked except the **External contour**.

**Warning:** Exiting the window **Objects of a detail** can be made by selecting any other part in the specification tree.

The activation of the pointer **External contour** causes the selection procedure in the flat segment of the model of the outer contour of the flat part.

**Warning:** The external contour of the part is a closed flat polyline on layer 0. It can be obtained with the **BOUNDARY** command on a flat segment of the model.

After setting the outer outline of the pointers in the window, **Objects** of detail and **Save** buttons are unlocked.

The activation of the **Inner holes** triggers the selection procedure on the flat segment of the holes of the part.

The activation of the **Notch** triggers the selection procedure on the flat segment of the contour cutouts of the part.

The activation of the **Uncut holes** triggers the selection procedure on the flat segment of the part uncut holes of model.

The activation of the **Flange** pointer leads to the re-formation of the dialog window, as shown in Figure 111.

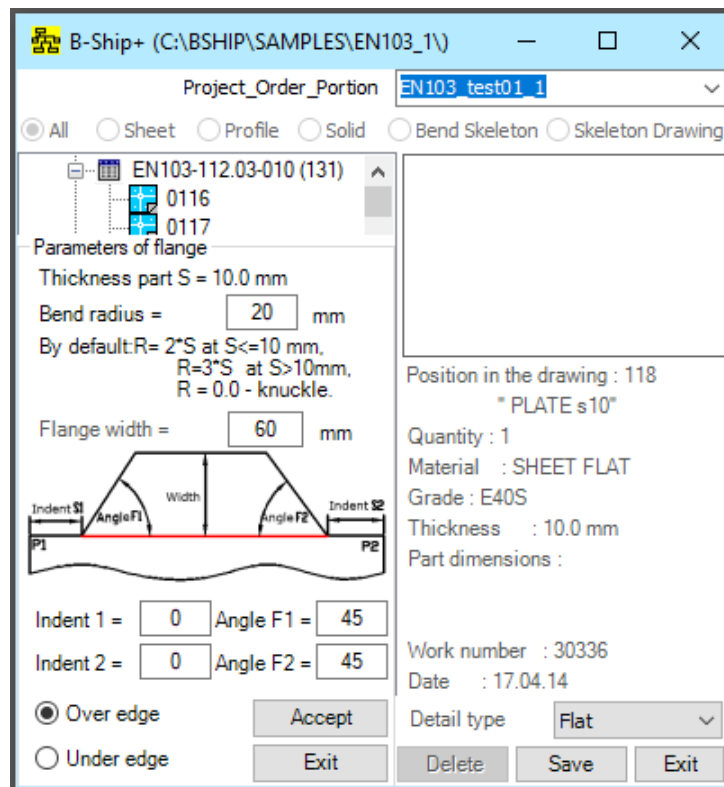


Figure 111

In this window on the right side, the flank options window **Parameters of flange**, in which you need to set the **Flange width**, **Indent 1**, **Angle F1**, **Indent 2**, **Angle F2**, activate the switch **Over edge** or **Under edge** and press the **Accept** button, which triggers the flange formation procedure on the edge of the part.

Exit from the window on the **Exit** button without forming a flank.

The activation of the **Chamfer on an edge** pointer to the re-formation of the dialog window, as shown in Figure 112.

In this window at the bottom of the project welds pop up. In the GOST tree, welds must specify the type or type of weld and press the **Apply** button, which triggers the fasca formation procedure on the edge of the part. In the process, you must respond to requests in the BricsCAD command line.

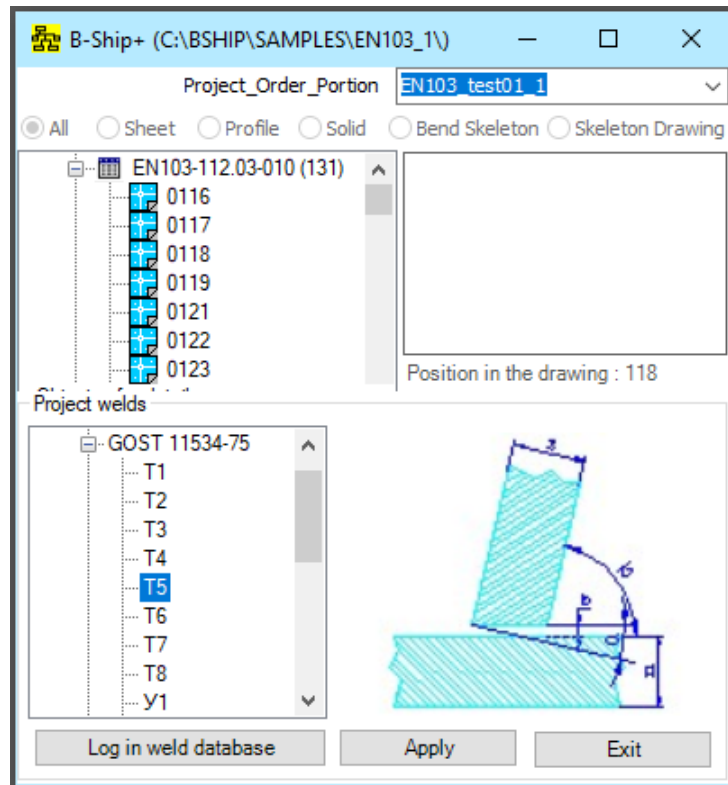


Figure 112

Pressing the **Log in weld database** leads to the re-formation of the dialog window, as shown in Figure 113.

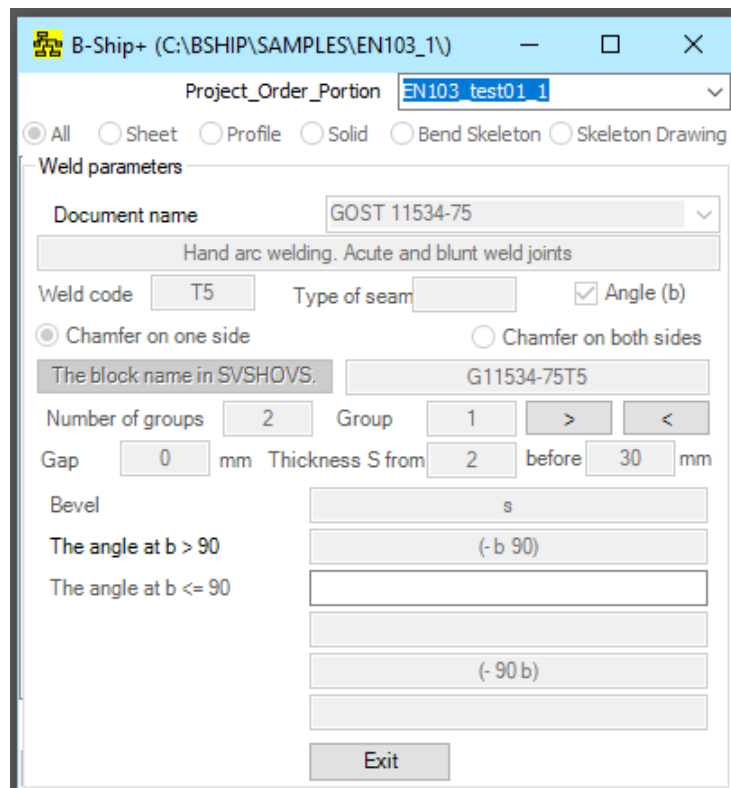


Figure 113

In the **Weld parameters** window, you can see the seam options.

**Warning:** Writing new documents, welding seams or adjusting the parameters of the sewing seams in the project database is described in section 8 "WELDING SEAMS".

The activation of the **Lines of stiffeners** triggers the selection procedure on the flat-section the lines of stiffeners.

The activation of the **Drilling lines** triggers the selection procedure on the flat-section the drilling line model.

The activation of the **Marking lines** index triggers the selection procedure on the flat-section the mark-up line model.

The activation of the **Orientation** leads to the re-formation of the dialog window, as shown in Figure 114.

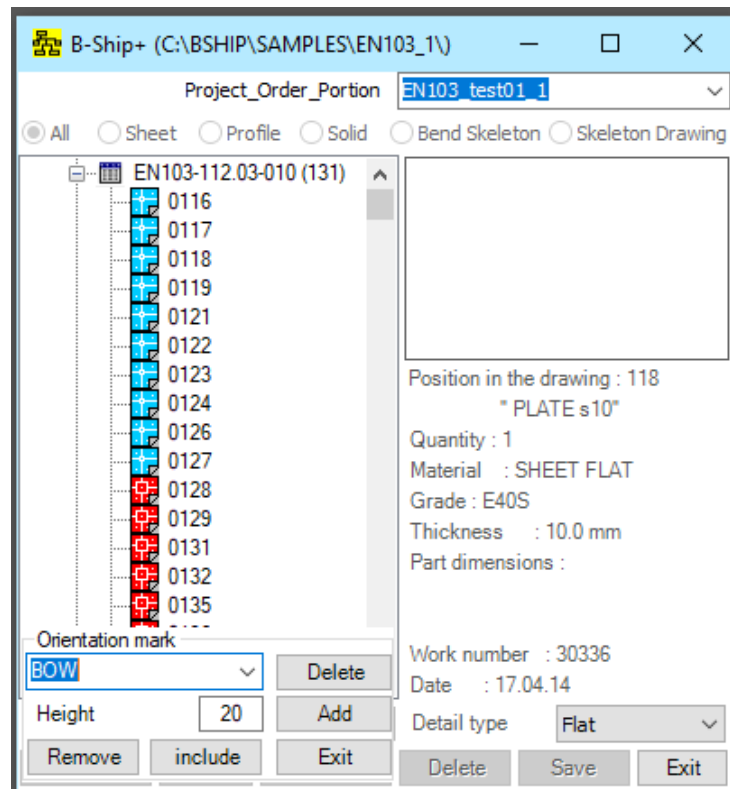


Figure 114

In this window at the bottom of the **Orientation mark**, which presents a list of text marks of orientation, a text typing box and functional buttons - **Delete**, **Add**, **Remove**, **Include** and **Exit**.

The **Delete** and **Add** buttons are designed for appropriate list operations.

The **Remove** and **Include** buttons are designed to be include and remove of the chosen orientation mark on the field part.

If the material of the flat part is set as a panel with stiffeners (the code of the material is 90), then in the list of objects shown in figure 115, the object of the stiffeners panel appears.

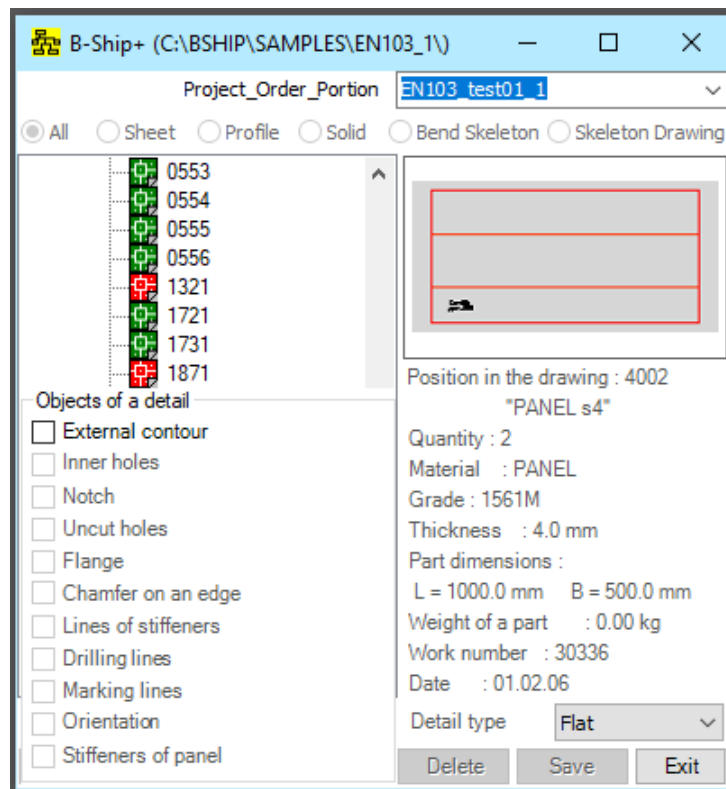


Figure 115

**Warning:** In the materials classifier for the panel with stiffeners, it is necessary to set the material for the stiffeners and the cross-section line, otherwise, when selecting the list **Create** a line **Model part** pops up the window shown in Figure 116.

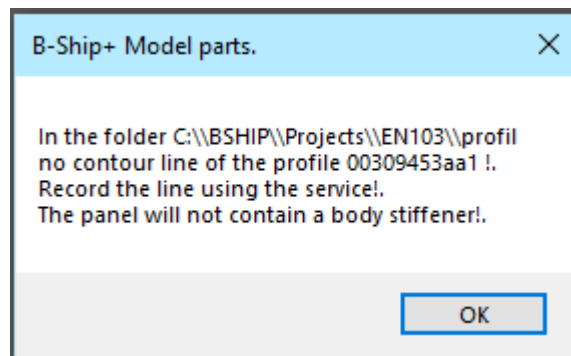


Figure 116

The activation of the stiffeners panel pointer leads to the re-formation of the dialog window, as shown in Figure 117.

At the bottom of the window pops up a window forming the **Stiffeners of panel**.

When the **Base** is activated, triggers the selection procedure to construct the stiffeners body along the line of sticking.

The **Joints**, **Bevels**, **Hole**, and **Scuppers** are unlocked.

Activation of a pointer triggers the procedure of forming the appropriate element of the stiffener.

After forming the body of the stiffener when you press the **Save** button, the edge of the part is recorded in the database and the **Stiffeners of panel** window is ready to form the next hard edge.

Exit the window on the **Exit** button.

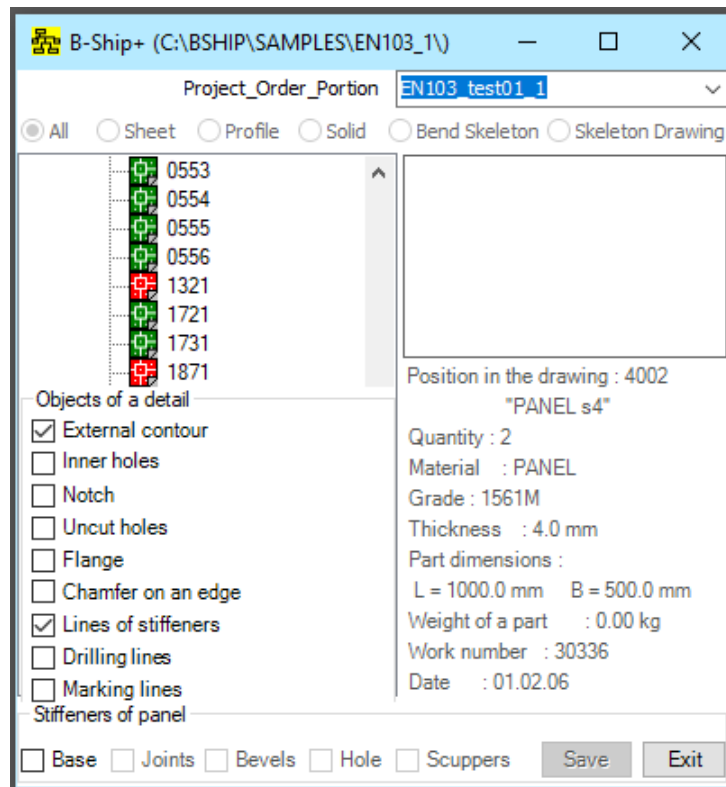


Figure 117

To remove any objects from the part, you must deactivate the corresponding pointer. Deactivating the **External contour** the removal of all part objects and the blocking of the **Save** button. The part are calculated and recorded at the click of the **Save** down button.

When you select the details of the **Unroll** line in the list, the dialog window is reformed as shown in Figure 118.

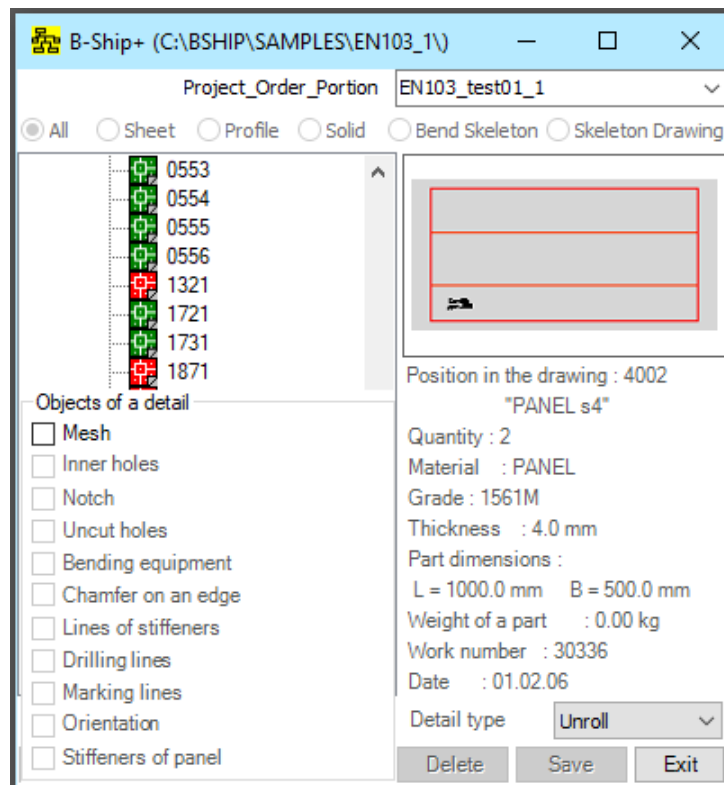


Figure 118

As a base object, you need to specify a network that can be generated by the **Surfaces** tab of the **WORK ON MODEL...** or by means of BricsCAdA.

**Warning:** Parts that are scrapped should be set by the mesh and the scrapping lines.

After specifying the mesh in the model, a request is made to indicate the thickness of the part relative to the surface of the mesh.

In the list of objects of part there was a new object – **Bending equipment**.

When the pointer is activated, the dialog window is reformed, as shown in Figure 119.

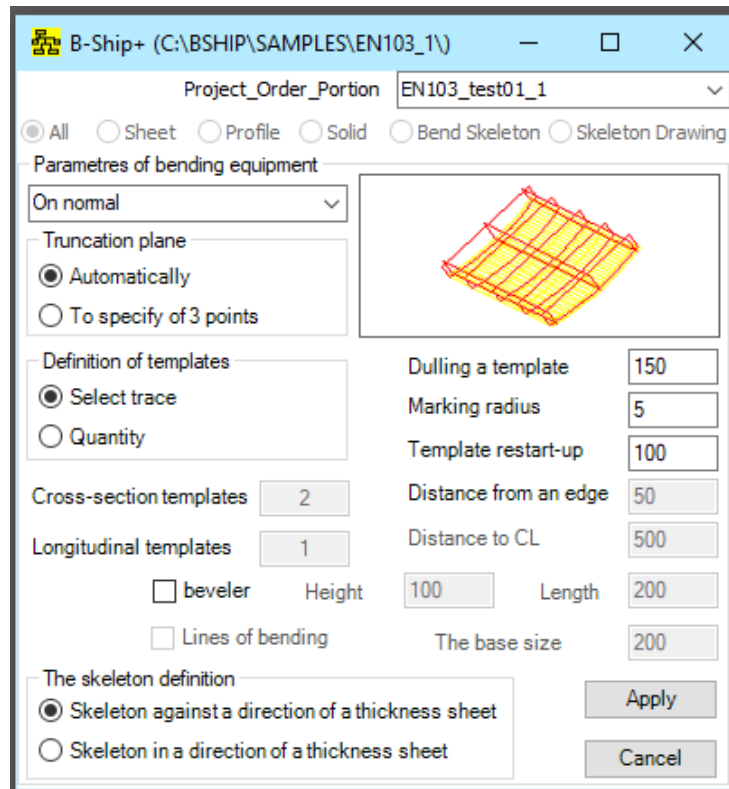


Figure 119

Flexible frame templates can be generated in three ways that are set in the breaking list of the flexible snap options shown in Figure 120.

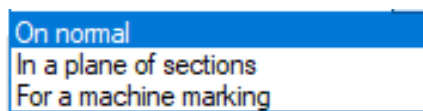


Figure 120

The **On normal** method is designed to generate patterns in the plane of a normal frame truncation plane.

Method **In a plane of sections** is designed to generate patterns in the plane, usually frames, in which case the patterns to the truncation plane are set under the small.

**For a machine marking** method is designed to generate patterns in the planes of the frames, but in a special form for later cutting and drawing on machines with software control.

The view of the given flexible frame is shown in the preview window.

The plane of the truncation of the frame can be determined automatically, or by indication in fashion whether 3 points.



The setting of the flexible frame position is carried out by the frame switches **Skeleton against a direction of a thickness sheet** or **Skeleton int a direction of a thickness sheet** in the "The skeleton definition" window.

**Warning:** The direction a part thickness relative to the theoretical surface (mesh) is set when selecting a mesh.

The pattern position can be set by showing the cross-section of the templates with the surface of the part at two points, or by showing the line of crossing the surface of the part with the frame section. You can set the number of transverse and longitudinal templates and the protection of extreme patterns from the edge of the sheet.

You need to set a minimum dulling of templates, a radius for marking the cross-section points of the edge of the sheet with templates, and the size of the templates re-release from the edge of the sheet.

If you calculate templates for machine markings, you need to set the **Distance to CL**.

The activation of the **beveler** triggers the calculation of the angle of the templates relative to the normal to the surface of the sheet part at the middle point of the templates section. There is a small man in the form of a rectangle with height and length set in the corresponding entry fields (the default is 100x200 mm).

When you press the **Apply** button, the settings will be memorized and the scan detail and flexible frame will be calculated when you press the **Save** button.

When you press the **Cancel** button, you don't calculate the skeleton.

When specifying the model detail (Figure 107) for the part from the profile roll and, if the material is not a "composite" brand, the dialog window is rebuilt, as shown in Figure 121.

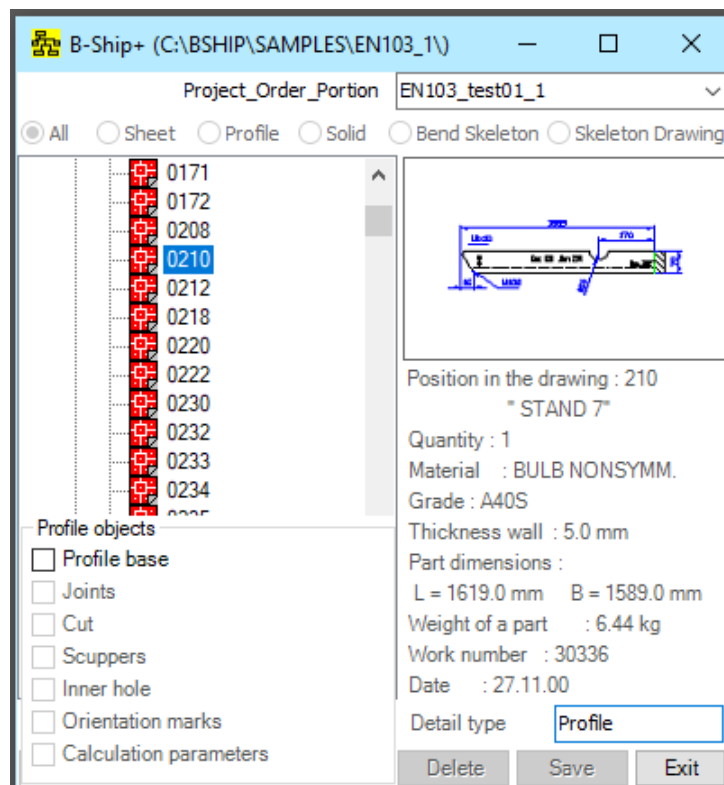


Figure 121

All pointers except the **Profile base** are blocked.

The activation of the **Profile base** causes the procedure to form body profile. The procedure puts a query in the command line - *"->Specify the contiguities line/mesh:"* to set and calculate the outline of the part from the profile. After the body profile is set, the pointers and the **Save** button are unlocked.

Activation of objects such as **Joints** causes the procedure of setting the joints of the profile part to perform.

The activation of **Cut** triggers a window shown in Figure 122.

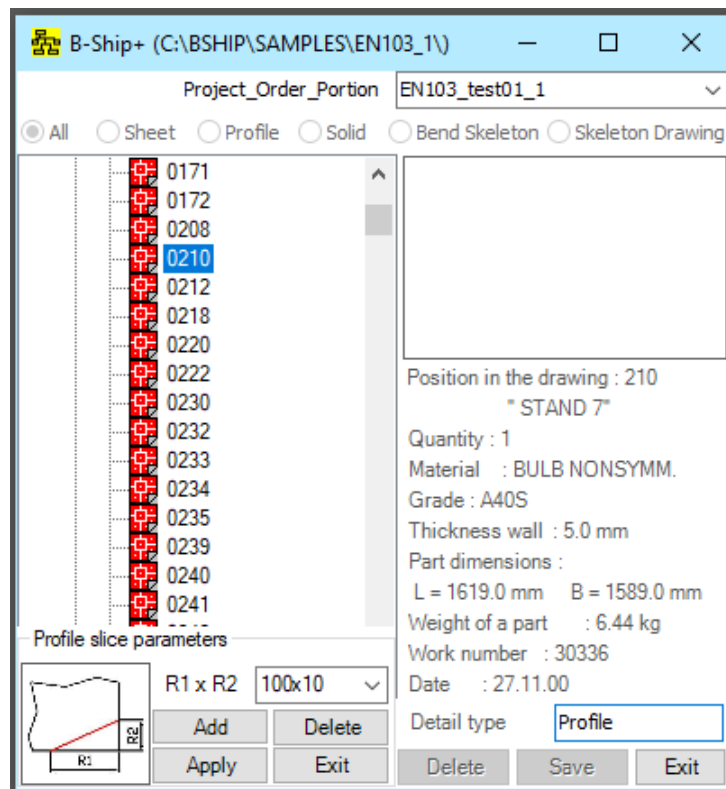


Figure 122

In the **Profile slice parameters** window in the drop-down R1xR2 slice, you need to take a line with slice parameters and press the **Apply** button. The cut-off procedure will start.

The R1xR2 slice list can be supplemented and edited with **Add** and **Delete** buttons.

Exit the window on the **Exit** button.

The activation of objects like **Scuppers** causes a window shown in Figure 123.

In the **Scupper parameters** window in the **Radius R** list, you must select a line with scupper parameters in the form of an arc with a given radius to start the scupper construction procedure.

The **Radius R** list can be supplemented and edited with the **Add** and **Delete** buttons.

If you want to build a scupper set in the form of a line, you need to click on **The choice of scupper** button and in the window shown in Figure 124, you must select a file like the dwg of the scupper contour and press the **Open** button.

The scupper procedure is launched at the touch of the **Apply** button.

Exit the window on the **Exit** button.

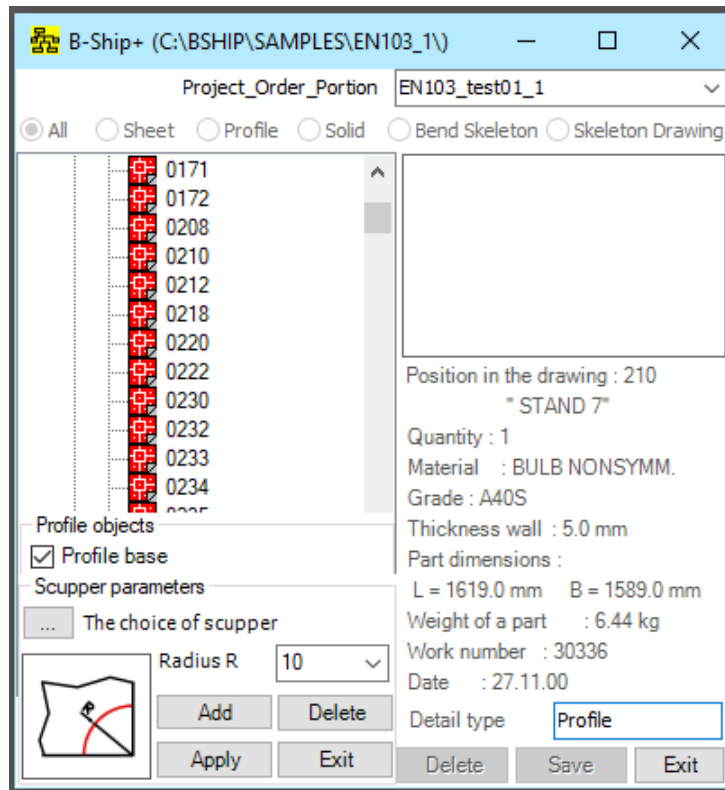


Figure 123

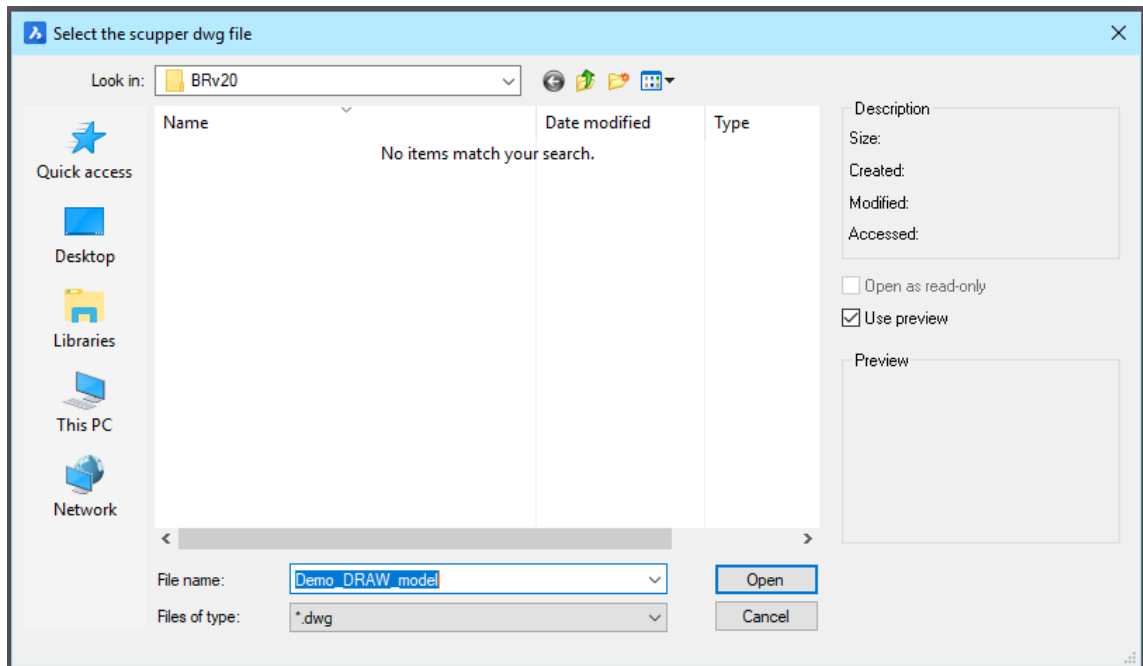


Figure 124

The activation of objects such as **Inner hole** causes a window for the task of the hole parameters, shown in figure 125.

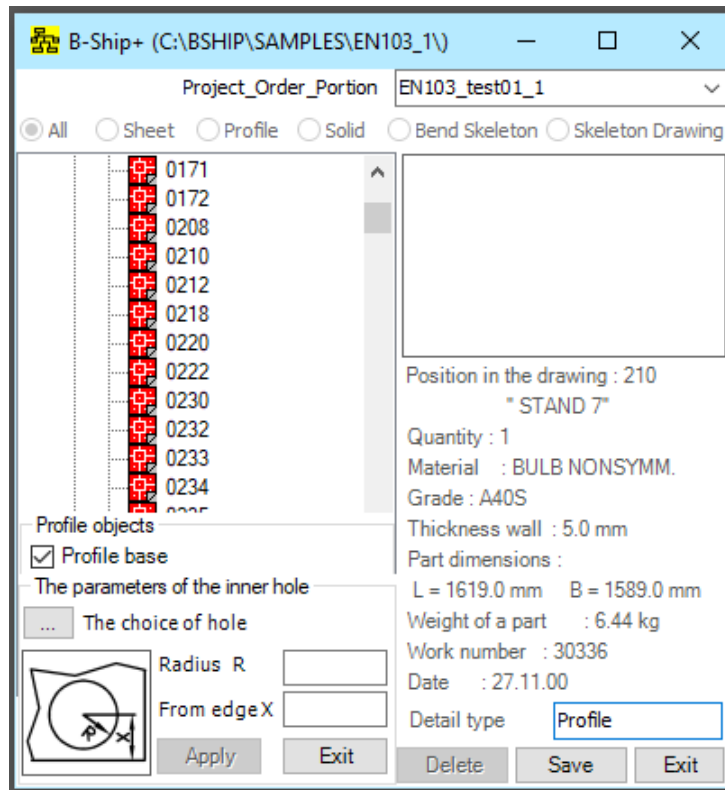


Figure 125

The **choice of hole** button is similar to the scupper button. **Radius R** needs to be set for a round hole. Option **From edge X** sets the hole position from the profile line.

The **Orientation Mark** is described above.

The activation of the **Calculation parameters** object triggers the **Part parameters from the profile** window shown in Figure 126.

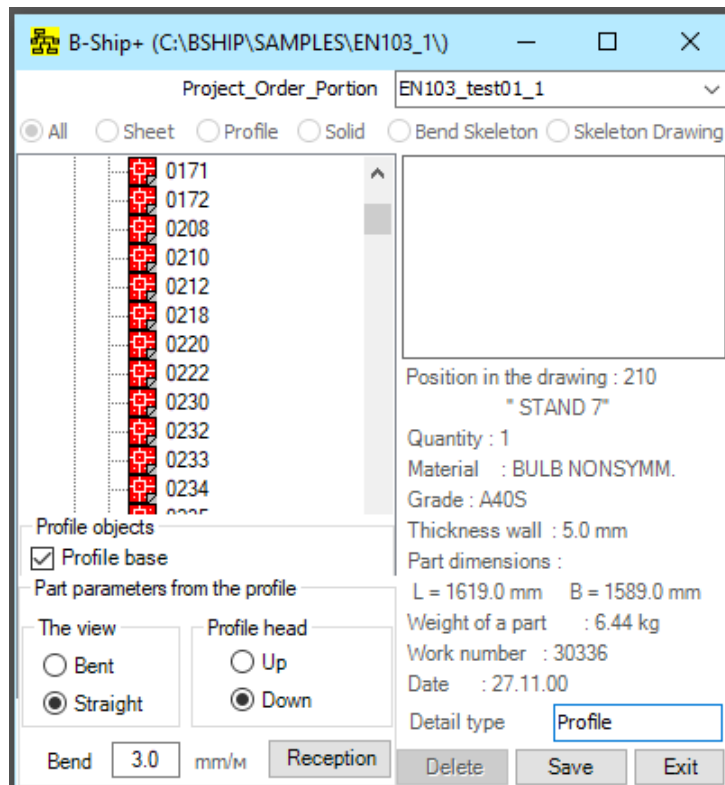


Figure 126

In this window, you need to use switches to set the profile part in the sketch TNC - **Bent** or **Straight**, the orientation of the profile head - **Up** or **Down** and set the option **Bend** in mm/m to determine the profile - straight or bend.

If the profile material is branded, the **Model part** (Figure 108) pops up the window shown in Figure 127.

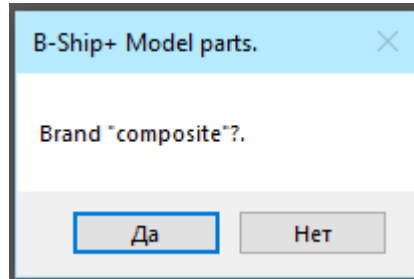


Figure 127

If the brand is "composite," the dialog window is rebuilt, as shown in Figure 128 and the wall and belt will be objects in this case.

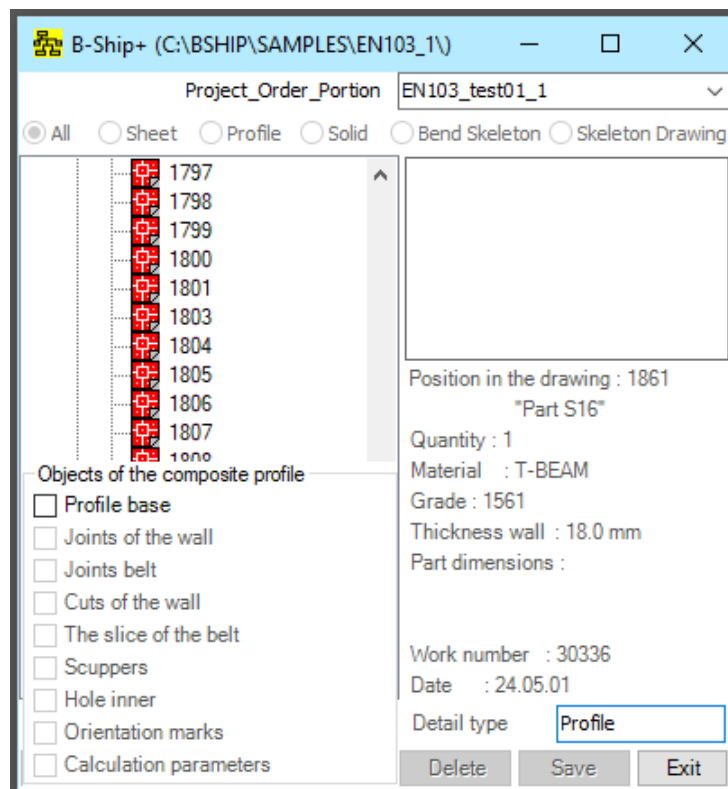


Figure 128

When listed in the knee (Figure 108) there is a reformation of the dialog as shown in figure 129.

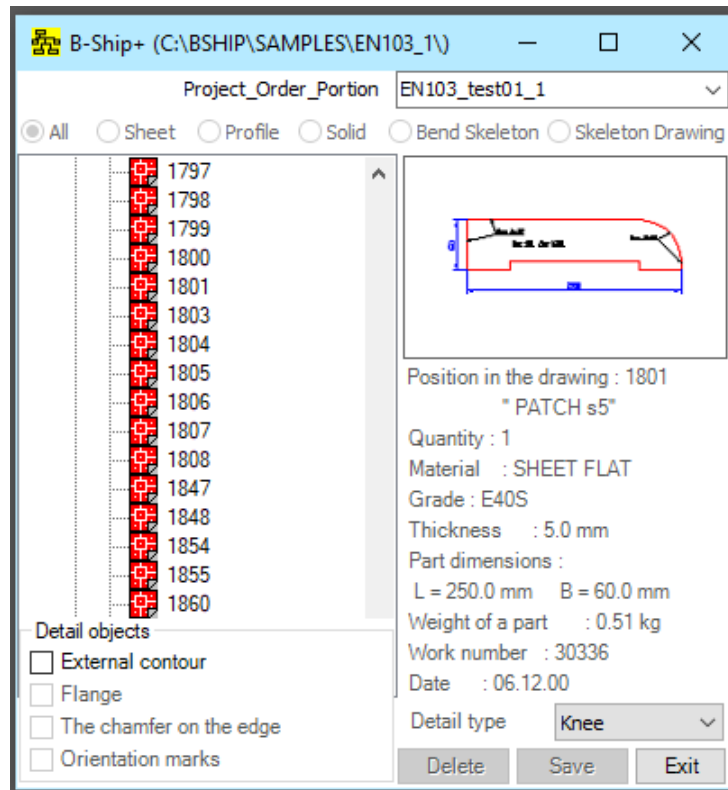


Figure 129

When the pointer is activated, the **External contour** of the window has the view shown in Figure 130.

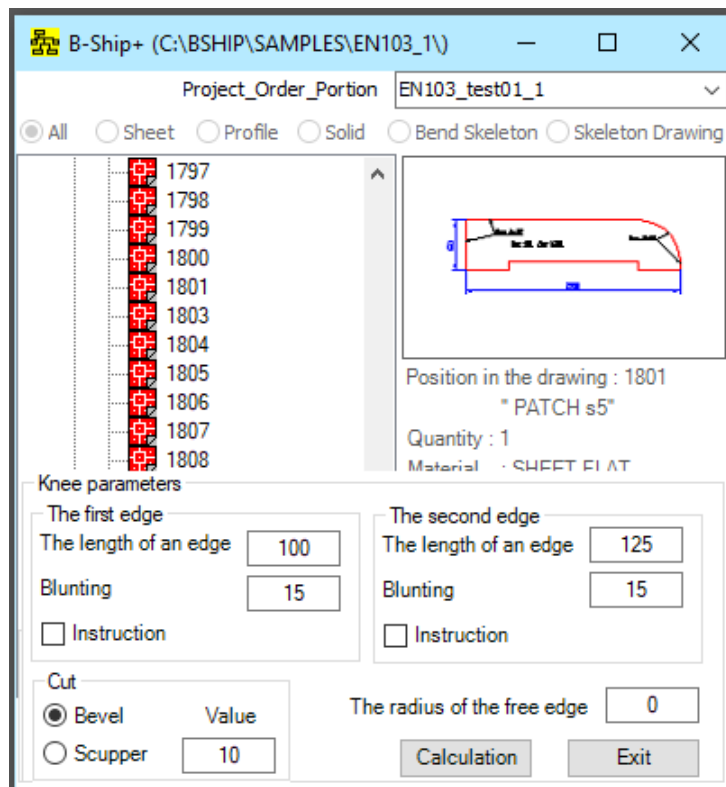


Figure 130

In the window, the **Knee parameters** need to set **The length of an edge** and the **Blunting** for the first and second edge, as well as set the angles cut parameters - **Bevel** and Scupper switches and **Value** radius for the scupper or the size of the bevel.

If the free edge of the knee is made on a radius then **The radius of the free edge** is set, else 0.

**Warning:** If there is no bevel/scupper, the **Value** should be 0.

If there is no free edge radius, it is 0.

The first or second edge can be set by activating the **Instruction**. In this case, the procedure performed when you press the **Calculation** button will request points on the first and/or second edge. Exiting the window on the **Exit** button, in this case the calculation is not performed.

After calculating the external contour of the parts are unlocked by the **Flange**, **The chamfer on the edge**, **Orientation marks**, and the **Save** button.

Procedures for the formation of objects are described above.

When you press the **Save** button, the procedure for recording the knee in the database is launched, and requests for the orientation of the thickness of the part in the model are issued.

When listed in the Belt (Figure 107) the dialog window is reformed as shown in Figure 131.

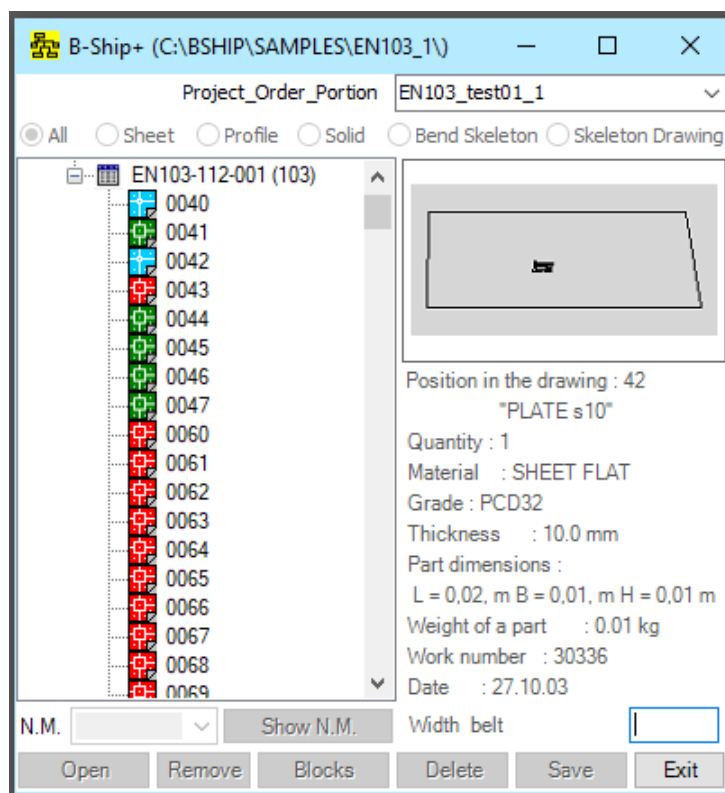


Figure 131

At the bottom right of the window pops up the field entering the **Width belt**.

If the material of the belt is set as FLAT BAR-PROFILE, then the width of the belt from the database will be specified in this field.

After entering the width of the belt, the dialog window is reformed as shown in Figure 132.

Activation **Body of belt** index causes to perform the procedure of generating the body belt with the request of the base line of the model (the edge line of the part, which adjoins the belt at a 90-degree angle to the plane of the part). The calculation asks for thickness orientation and belt shift relative to the plane of the base part.

After the body is assigned, the belt is unlocked by the **Joints**, **Cuts**, **“Boot”**, and **Orientation marks**.

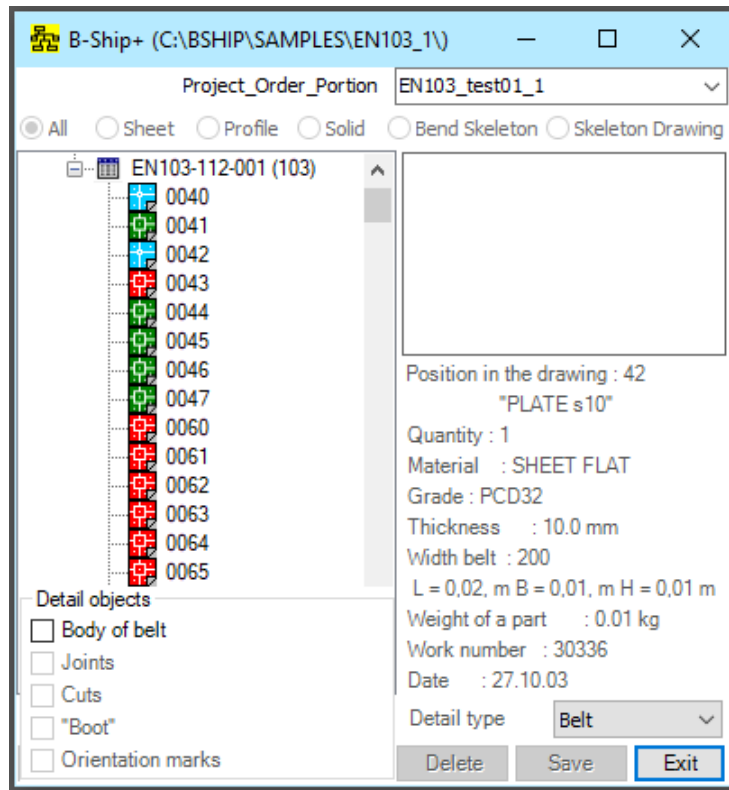


Figure 132

Activation of the pointer **Joints** triggers the procedure of forming the joints of the belt.

The **Cuts** and **Orientation marks** are similar to those described above.

When you activate the "**Boot**", the window looks like the one shown in figure 133.

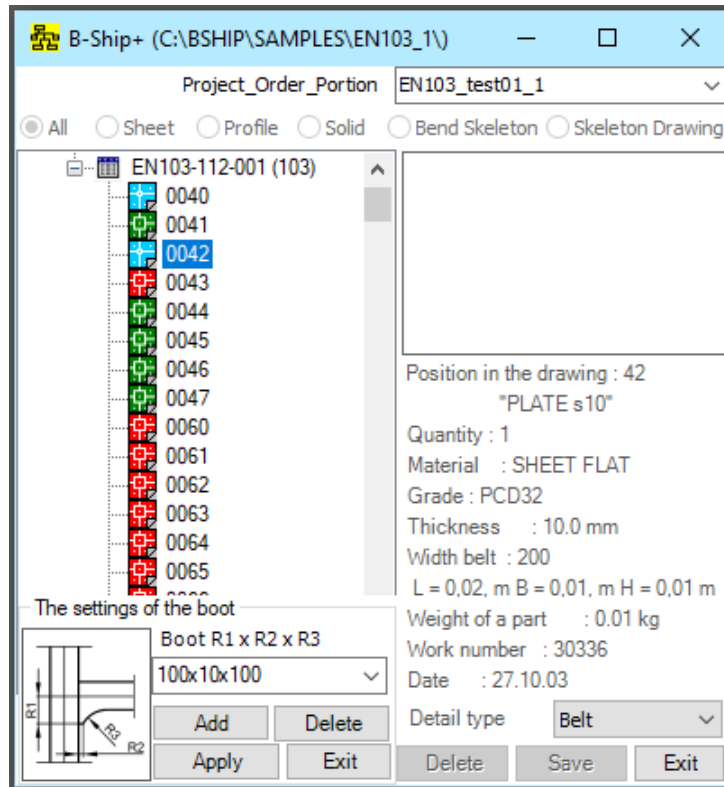


Figure 133

In "The setting of the boot" window in the drop-down list of R1xR2xR3, you need to take a line with the boot settings and press the **Apply** button. The procedure will start build of the boot.



The **Boot R1xR2xR3** list can be supplemented and edited with the **Add** and **Delete** buttons. Exit the window on the **Exit** button.

When you press the **Save** button, the belt recording procedure starts.

If quantity for part there is more than 1, you can copy the body of that part according to the location of the parts in the model. It is necessary to specify this position in the specification tree at the **Solid** switch as shown in Figure 134.

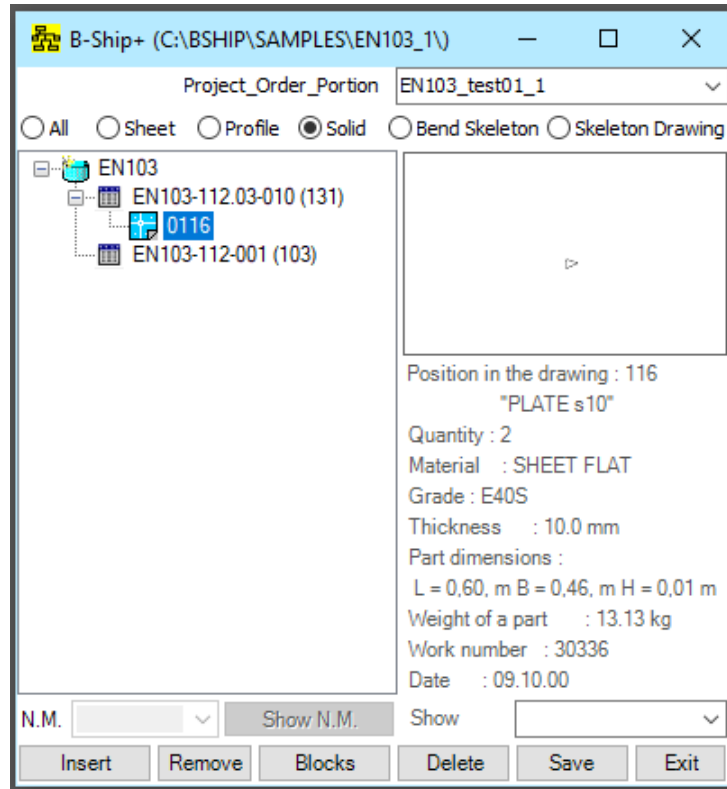


Figure 134

Then it is necessary to **Install** the body of the part in the model environment and copy the BricsCAD means block this part so many times that the total number of blocks equals the number of parts. Copies must be placed in the model according to the drawing.

When you press the **Blocks** button, you are called to form a set of part blocks and record these blocks in the database, and the specification tree is rebuilt, as shown in Figure 135.

In the specification tree, the part numbers with the index, starting with the unit, are formed under the appropriate position. Each copy of the part can be installed in the model environment.

**Warning:** If, with an active switch, the **Solid** in the specification tree is given the left mouse key at the Ctrl key pressed, the part that is already installed in the model, then this part will be shown in the center of the screen.

If you actively switch the **Solid** in the specification tree to specify the existing file in the database, the **Show** list is activated, in which three lines – **Chamfer Parameters**, **Parameters body** and **C.M. body** - are activated.

Choosing the **Chamfer Parameters** line triggers the process of showing in the case of the edge of the part with the assigned face.

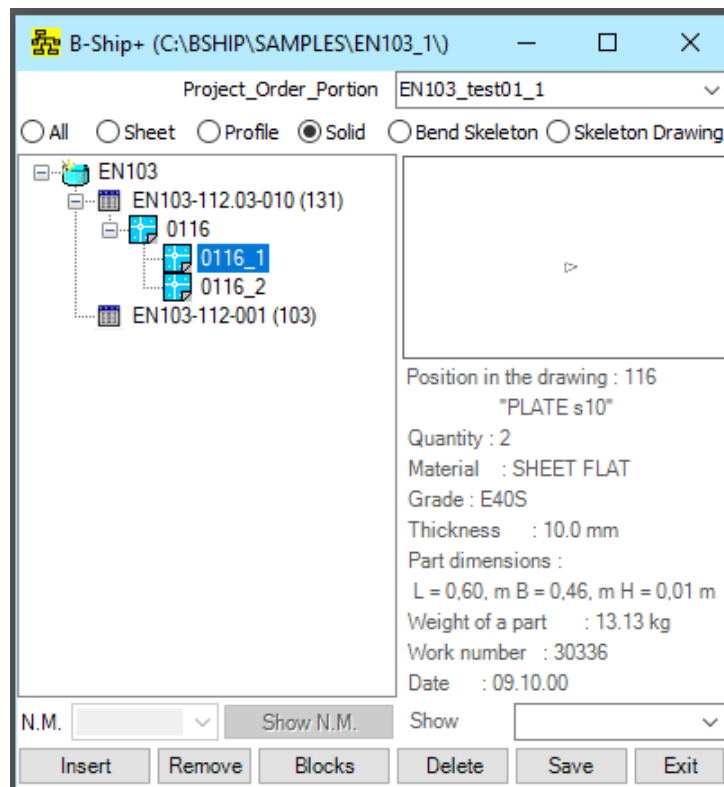


Figure 135

If you choose the **Parameters body** line, you see the dialog window being reformed as shown in Figure 136.

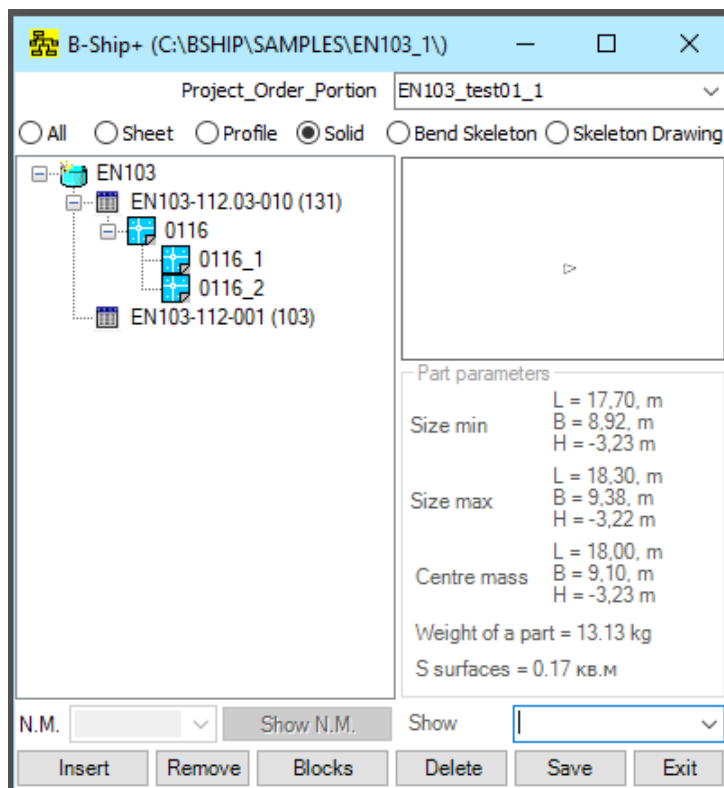


Figure 136

In the **Part parameters** window, the details show the characteristics of the part in the model environment.

If you select the **C.M. body** line, the model's environment will draw a point in the form "+" center of the part mass.

With an active **Bend Skeleton** switch in the specification tree forms a list of parts for which a flexible template is generated. The **Install** and **Remove** unlock buttons, this allows you to call the flexible templates files to view.

With an active **Skeleton Drawing** switch in the specification tree are formed by the list parts for which the flexible templates is generated. If there is no template drawing file, the pictogram is an empty square, and the **Install** and **Remove** buttons are unlocked, allowing you to call the flexible template files to view. The **Delete** button is designed to remove a file with a flexible template from the database.

The **Create** list contains lines shown in Figure 137.

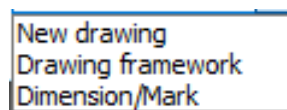


Figure 137

When you select a line in the list, the **New drawing** is reshaping the dialog window as shown in Figure 138.

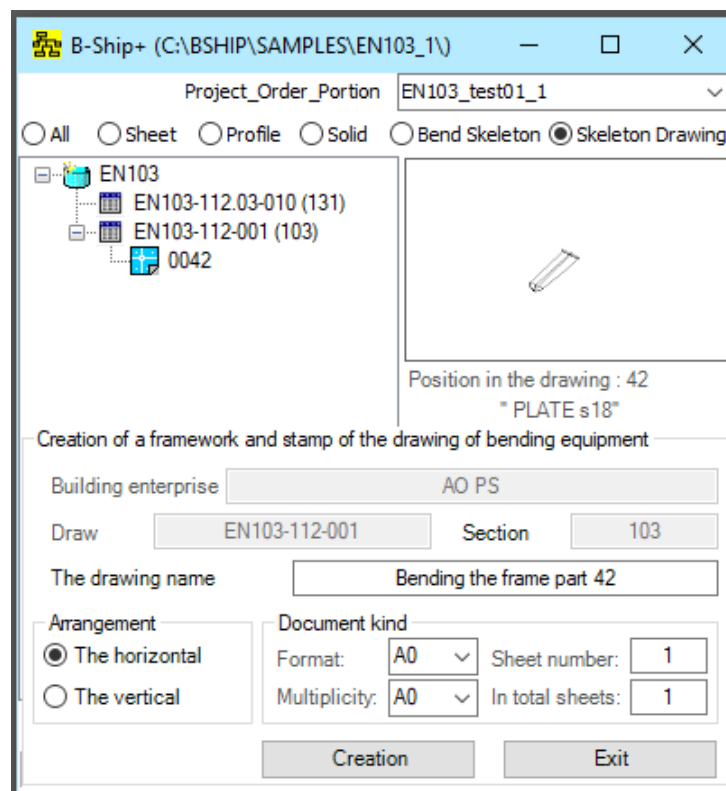


Figure 138

In this window, you need to set the **Format**, **Multiplicity**, the **Sheet number**, **In total sheets**, and the location of the drawing – **The horizontal** or **The vertical**.

**Warning:** For flexible snap drawings, the number of sheets must be determined based on the number of patterns.

At the touch of the **Creation** button, the procedure for forming a blank drawing with a stamp will be called, the exit without molding the drawing on the **Exit** button will be called.

When you press the **Drawing framework** button, the drawing procedure will be triggered.

**Warning:** The drawing development work can be stopped by the corresponding request in the BricsCAD command line, and continue by pressing the **Drawing framework** button.

When you select **Dimension/Mark** in list, you'll start a process to cover additional sizes and texts if necessary.

Once the drawing has been formed, it can be recorded by clicking on the **Save** button, which will be unlocked. When re-pointing in the drawing tree and active **Drawing framework** switch, a pattern in the specification tree is formed a list of details, for which there is a drawing of the frame, the pictogram will be painted green, and the buttons **Install**, **Remove** and **Delete** will be unlocked.

When working with model details, there are often situations when you need to adjust the database by entering a new position, removing or changing the details of an existing position. You can do this in the **BDATA** module, but you can do it faster and more clearly in the **MDET** module.

When you select the drawing specification in the tree and press the **Ctrl + left** mouse key, with the active switch **All**, pops up the "Window for entering parameters for order details" shown in Figure 139.

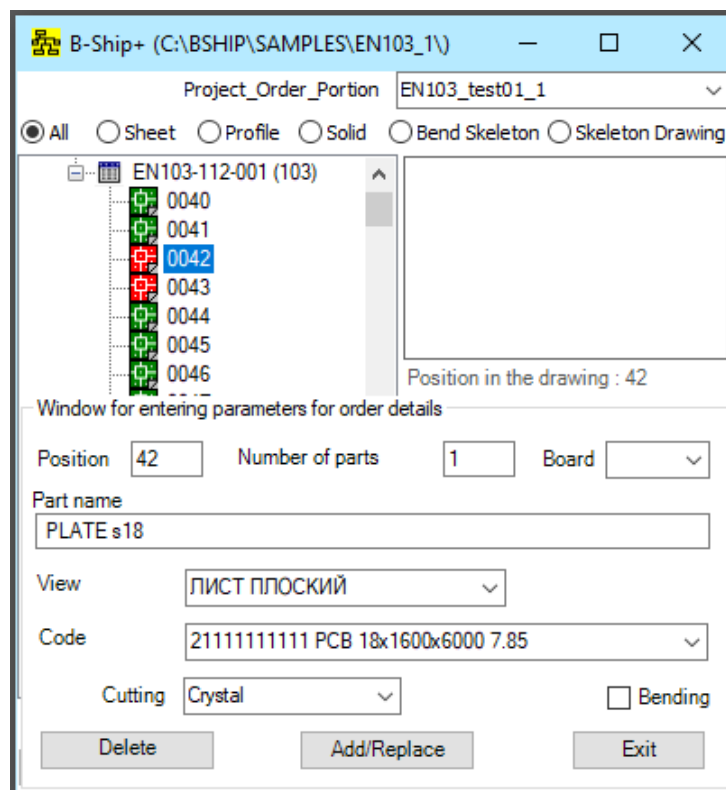


Figure 139

In this window, setting a consistent **Position**, **Number of parts**, **Board**, **Part name**, selecting the type of material from the **View** list and the **Code** of the material from the list, **Cutting** from the list and if necessary specifying the **Bending**, on the button To add to the dat can be replenished with a new position. Lists of material type and material code are formed by the classifier of materials of this drawing, if the necessary material is not available, it must be set in the **BDATA** module.

Using the **Add/Replace** button, the part options can be entered into the database, and if necessary, the position can be removed on the **Delete** button.

## 7. ASSEMBLY TOOLS

7.1. Command window interface **ASSEMBLY TOOLS ...**

Figure 140 shows the "B-Ship+ Assembly Tools" window called command **ASSEMBLY TOOLS...**

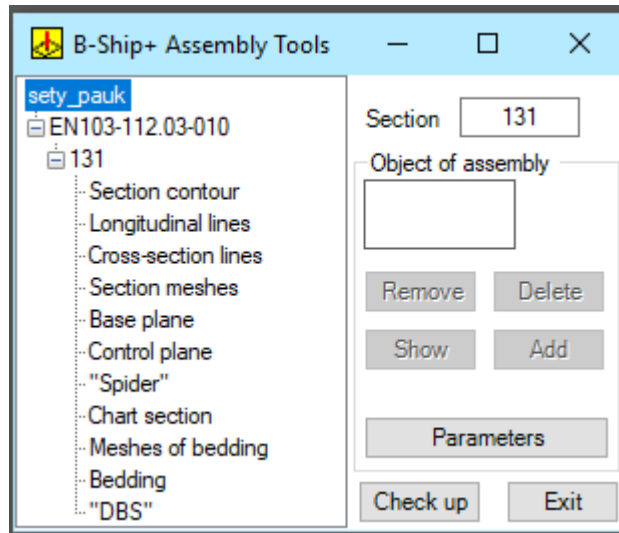


Figure 140

The "B-Ship" Assembly Tools" window contains a model tree window with a drawing, section and objects of snap, "Object of assembly" window, and functional keys. The model tree window is rooted in the name of the model file, and underneath it is a drawing associated with the model and a section.

Underneath the section are standard objects:

- the contour of the section;
- longitudinal lines of the frame;
- Cross-sectional lines of the frame;
- Section meshes;
- Basic plane;
- Control plane;
- diagram of the breakdown of the base frame("Spider");
- scheme of marking of longitudinal and cross-section sets (chart);
- meshes of bedding;
- Bedding (data to build a bed section);
- DBS (data to set up the coke beds section).

To calculate the relevant objects, you need to specify an object in the tree, and the "Object of assembly" window reflects the presence of the object in the model - to the right of the object name - "Yes" or "No" and highlight the relevant situations of the **Remove**, **Delete**, **Show**, **Add** and **Parameters** (for objects that need them).

If there is no object, only the **Add** button is available, when you click on which the process of creating .object is launched. Typically, the process of creating an object is requested to enter information from the command line. It is necessary to enter the relevant information and the procedure creates an object, the next point to which in the tree, to the right of the name of the object in the window "Object of

assembly" appears the inscription "**Yes**" and unlocked buttons **Remove**, **Delete** and **Show**. The buttons **Remove** and **Show** trigger appropriate procedures for illuminating the object's primitives, and the **Delete** button triggers the procedure of removing the object's primitives from the model.

To control the intersection of longitudinal and cross lines representing the surface frame, when calculating the scheme for marking the longitudinal and cross-section set, if necessary, you can start the procedure of crossing lines, pressing the button **Check up**. If the lines intersect, the window shown in Figure 141 pops up on the screen.

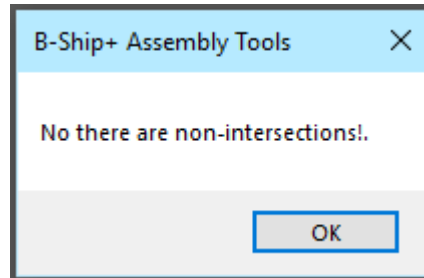


Figure 141

If there is non-intersections, illuminated lines that do not intersect and the window shown in Figure 142 pops up on the screen.

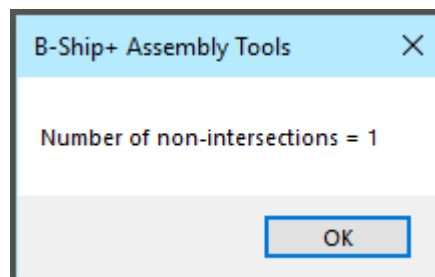


Figure 142

The query, shown in Figure 143, then pops up on the screen

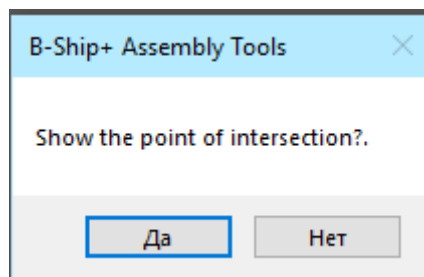


Figure 143

The query, shown in Figure 144, then pops up on the screen

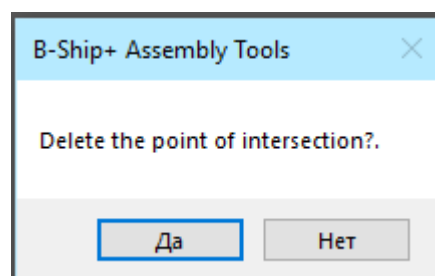


Figure 144

The **Base plane** object is a plane on which the spider and chart section will be designed, as well as it is the base of the bedding.

Object **Control plane** is the plane of the control line for the spider and the chart section, and for the bedding it is the plane from which are built bedding or the templates.

For objects like **Spider** and **Chart section**, section meshes are listed as basic objects, and these are the meshes through which the set dock lines are broken.

For objects such as **Bedding** and “**DBS**”, meshes are listed as basic objects, which are built with the thickness of N.O. sheets.

Objects such as **Spider**, **Chart section**, **Bedding**, and “**DBS**”, requires settings to be entered. If objects like **Spider** or **Chart section** are created, the "B-Ship+ Assembly Tools" window is rebuilt as shown in Figure 145.

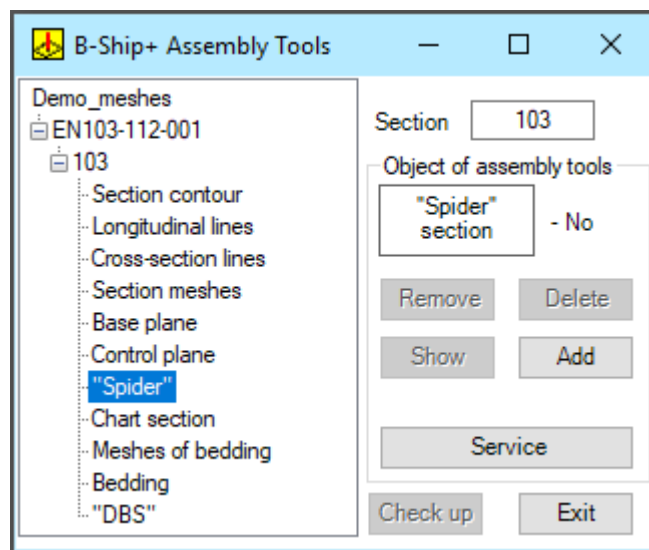


Figure 145

You can set the height of the text for the labels. By pressing **The size on diagonal**, it triggers the arrow formation procedure from the first point set to the second with the generation of size text.

When you press **The size on an extension** button, you start the process of forming a one-dimensional connection from the first set point of a given line to the following set points with the formation of sizes along the line.

When you press the **Inscription** button, the procedure for forming a text line, if necessary, starts. Exit from the service on the **Exit** button.

If you create an object **Bedding**, when you press the **Parameters** button, the "B-Ship+ Assembly Tools" window is rebuilt as shown in Figure 146.

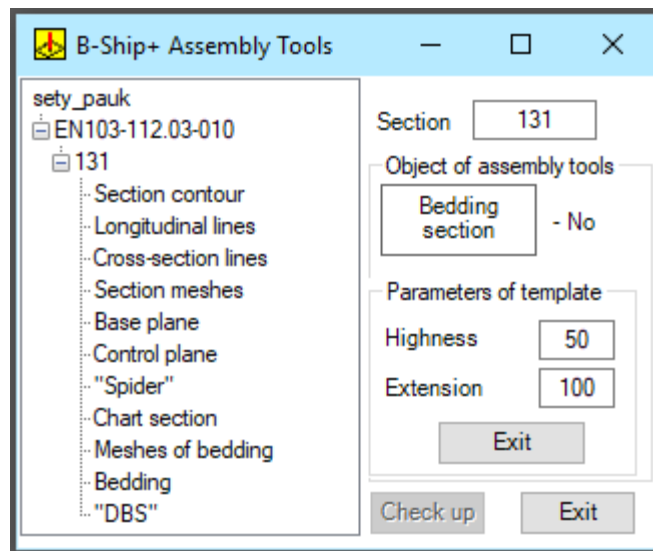


Figure 146

In this window, you can set **Highness** and **Extension** of the template over the edge and press the **Exit** button.

If objects like **"DBS"** are created, when you press the **Parameters** button, the "B-Ship+ Assembly Tools" is rebuilt as shown in Figure 147.

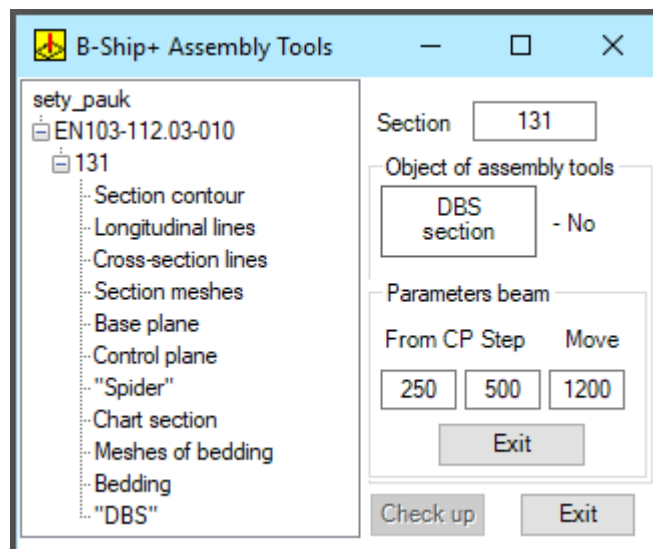


Figure 147

In this window, you can set **From CP**, **Step** and **Move** of the racks of beams and press the **Exit**. Exiting the window "B-Ship+ Assembly Tools" is done by pressing the **Exit** button.

## 8. WELDING SEAMS

### 8.1. Command **WELDING SEAMS...**

Command **WELDING SEAMS...** calls the "Project welds" window (figure 148).

The window is designed to form a database of welds of the project based on the parameters of welds set in GOSTs and calculation of the chamfer parameters at the edge of the part.

Exit the window on the **Exit** button.



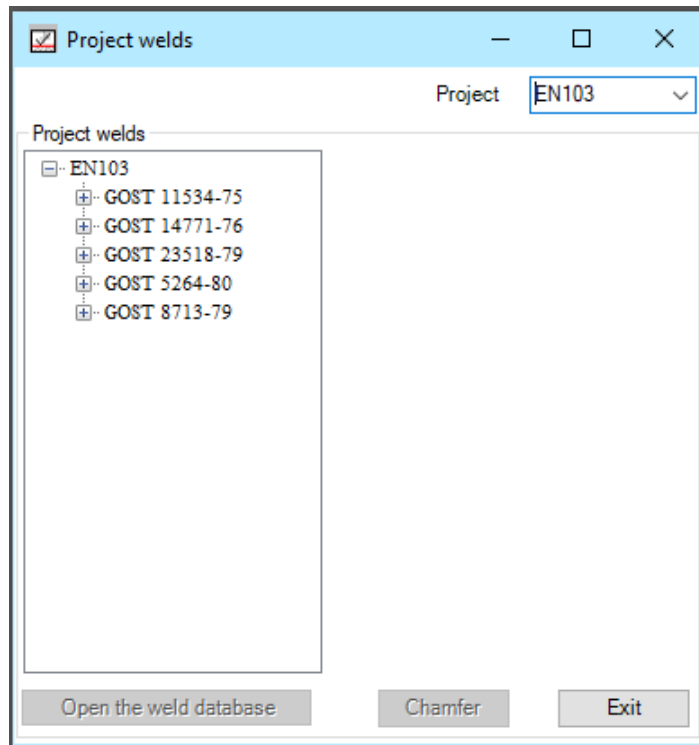


Figure 148

In the upper right-hand corner of the project welds window is a list of BD projects, in which you can activate the project.

**Warning:** The list contains only active-user projects that have a sub-catalogue /svarka/ in the catalog <disk>BSHIP/Projects/<name project>.

When pointing to the GOST point in the welded seam tree, the "Project Welds" window has a view shown in Figure 149

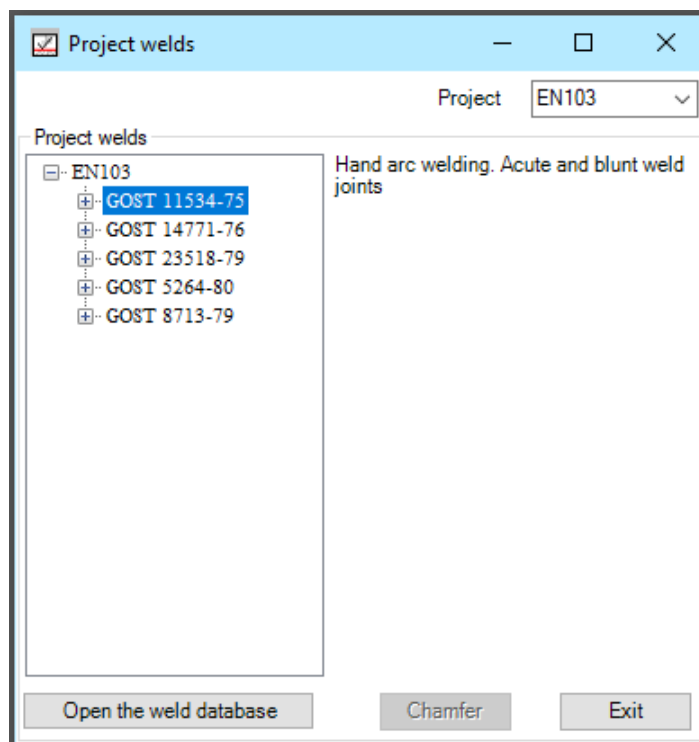


Figure 149

**Warning:** The B-Ship+ system comes with a welding database for the most used in the shipbuilding goes on welds. In total, the parameters of five standards are set: GOST 8713-79, GOST 5264-80, GOST 14771-76, GOST 11534-75 and GOST 23518-79. The parameters of welds in the standards are copied in the database of the current project from the catalog of the B-Ship+ system at the first call of the "Project welds" window or the command **WELDING SEAMS....**

The message window on the right (Figure 148) shows the full name of the document.

After the disclosure of the GOST item... in the weld tree and selecting an item with a weld code or a point overlooking the weld, the "Project welding" window has the view shown in Figure 150. In the window shows the primitive appearance of the weld.

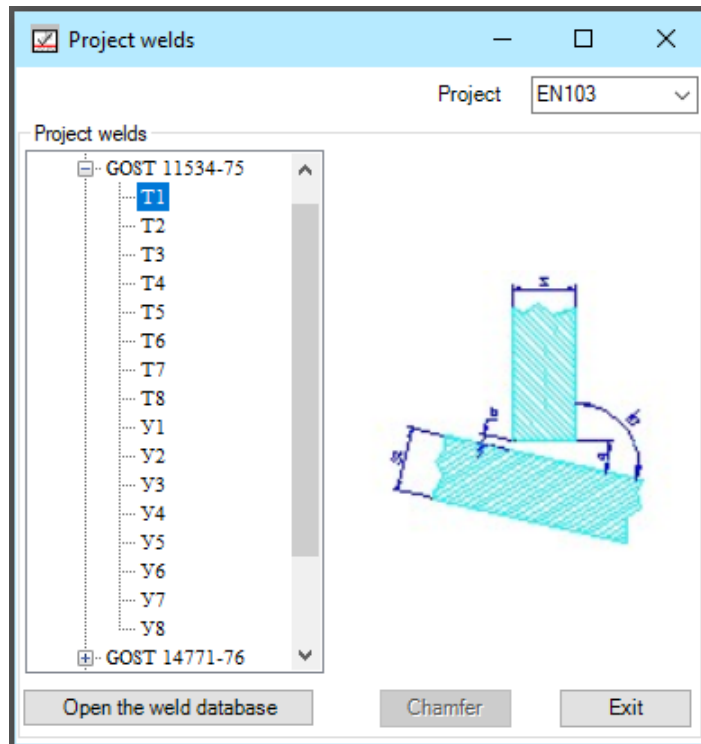


Figure 150

To call the drawing of the sketch of the cutting of weld edges (copying when necessary or high-quality viewing) you need to "double click the mouse" to specify in the tree the code or the kind of weld. Exit from the drawing of the weld is repeated "double click of the mouse" on the code or the kind of weld. The **Chamfer** button is activated only for welding seams that have been cut for welding. When you press the **Chamfer** button, the procedure for forming a facet block on the part box in the active BricsCAD window is started.

**Warning:** The active window should have a part contour on the KBAS layer.

To add a new document to the welds database, you must specify in the welds a point with the name of the project and press **Open the weld database** in the welded seams database, a new window shown in Figure 151 will be called.

In this window, the document name field is available for input and below the document summary field, such as the drawing number for which you can copy from the GOSTs to a sample of welded drawings. You need to enter the data into the input fields, after entering a brief description of the document, you need to press the enter key, activated the button **Save**.

Figure 151

When you press the button **Save** is the record of this document in the database of welds of the project.

If you select a weld tree, an item with a code or kind of weld and a click on the **Open the weld database** button in the welding database will be called to the window shown in Figure 152.

Figure 152

This window shows the parameters of the weld and unlocked the **Name block in SVSHOVS.dwg** buttons, **Delete** and **Save**.

You must enter your data for new seams or to adjust the data of the existing seam if necessary.

When you click on the **Name block in SVSHOVS.dwg** button, you call a window to select a .jpg file from the catalog <disk>/RSHIP/Projects/svarka/shov.jpg/.

Formulas for calculating the settings of the **Size of chamfer** and **Angle**, usually depending on the thickness, which in turn changes within the specified limits, which is set by the number of groups change in thickness. The renting formulas are written according to the rules of the Lisp language.

When you click, **Save** the data is recorded in the project weld database.

When you press the **Delete** button, the weld data will be removed from the project's welding database.

When you press the **Exit** button, you exit the window and return to the previous window with the tree of the project welds.

The procedure for copying the weld from gost is:

- to create a new document;
- Point a weld in the weld tree to copy the weld (drag and drop) of the weld when the right mouse is pressed into the new document;
- set the weld number in the input box in the new document.

## 9. NODES TABLE

### 9.1. Command **NODES TABLE...**

Command **NODES TABLE ...** Module **Mdet** is designed to generate design site information in the database.

Typically, the designer develops an album of design nodes in the form of a dwg file, as shown in Figure 153

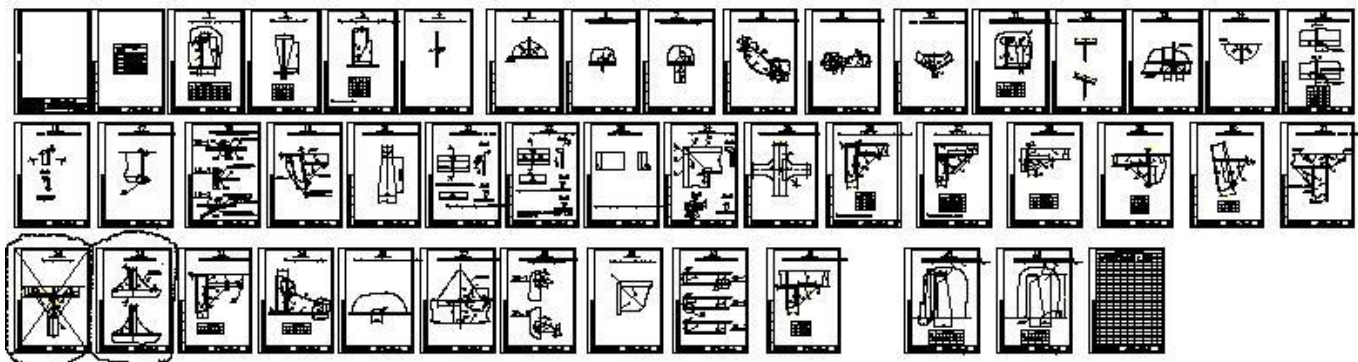


Figure 153

Dealing with such a file is not very convenient. It is suggested that each page be framed as a block and form a tree of blocks with which it would be convenient to work.

When you call the command **NODES TABLE...** a procedure that first checks the presence of a node table in the project database. If the node table file already exists, the window shown in Figure 154 is called.

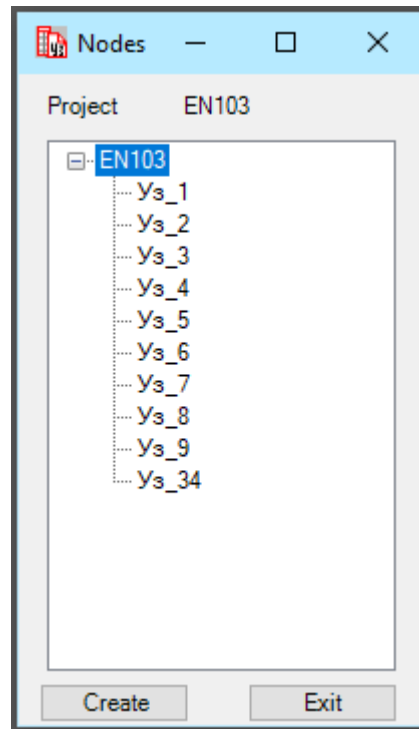


Figure 154

When you select a node, you call the appropriate block, and when you select a node tree with the name of the project or double-click on the node to the screen, the original file is called. The window return shown in Figure 155 occurs when you press the **Create** button, or if the node table file no exists.

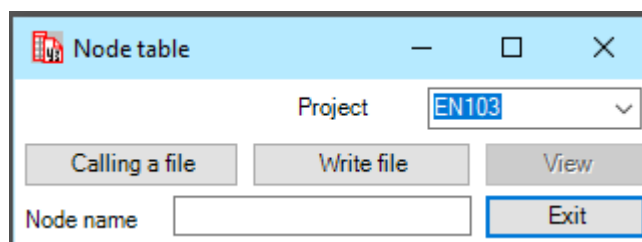


Figure 155

The disclosure list **Project** contains projects registered in the system database, and the list shows an active project. When you're working, you'll sometimes need to look at another project's node table to copy the site, and you can do so by showing another project in the **Project** list if it contains a node table.

When you press the **Calling a file** button, the window shown in Figure 156 is called to the screen.

In this window, you need to specify the original file created by the designer and click on the **Open** button. A file is called to the screen, and if the file already has nodes created earlier in the **NODES TABLE ...** command the window shown in Figure 154.

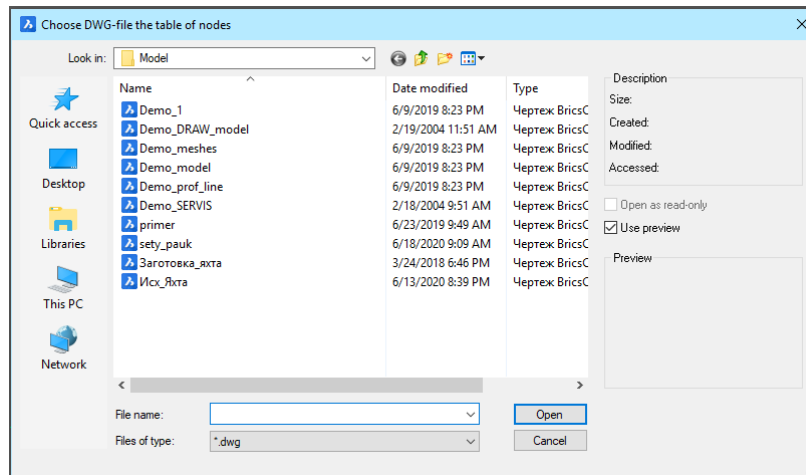


Figure 156

If there are no nodes in the file, you need to enter the node name (Figure 155) and click **<enter>** in the **Node name** box to create a block.

The process of forming a block with a specified name is started, and checks for the presence of a node with that name in the drawing and a request is made to select the drawing primitives for inclusion in the block. Once the block has been formed, these primitives are removed from the drawing (for convenience).

**Warning:** If you have a node, answer **Yes** to the request to replace the node, the process of removing the node with the restoration of the primitives leading to the node in the original file is performed.

When you select a node with a right-clicked mouse in the window shown in Figure 154, the same node removal procedure is triggered.

After all the nodes have been formed, you need to remove the extra primitives in the original file and click on the **Write file** button. The process of recording the formed file in the project database is started, and a window shown in Figure 156 is called to the screen.

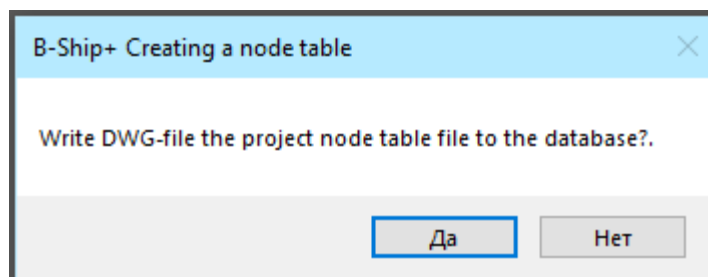


Figure 156

When you click on the **Yes** button, you write a dwg file with the name **ALBUZL** into the project database (the directory is ...\\Projects\\project name\\ALBUZL\\...). If you press **No**, the window shown in Figure 157 is called to the screen, where you can set the file name and its location to save. This is useful for saving an intermediate state when creating a node table.

When you click on the **Cancel** button, we return to our original state.

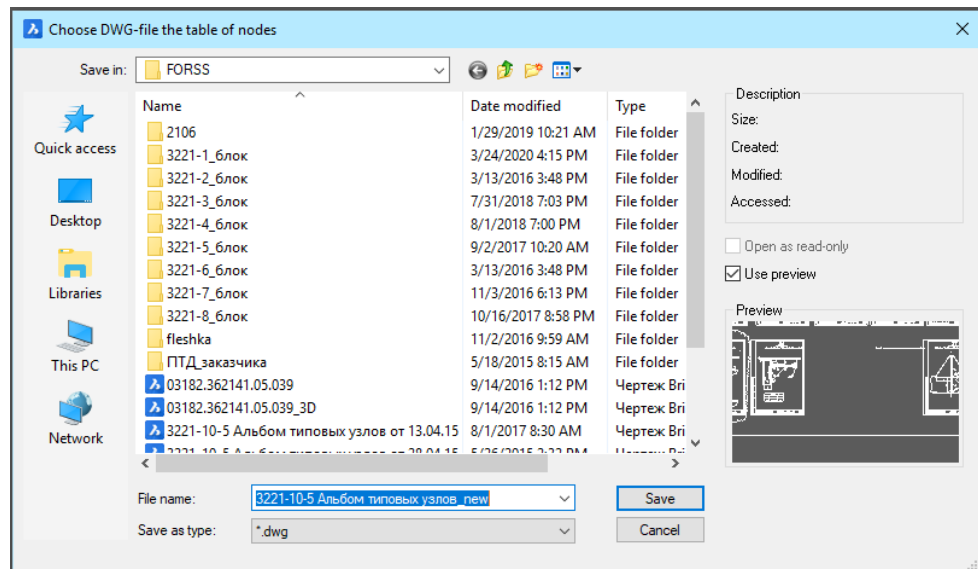


Figure 157

Exit the window on the **Exit** button.

## 10. SERVICE

### 10.1. The window Interface of a command **SERVICE**

Figure 158 shows the main substitution of the **MDet** menu.

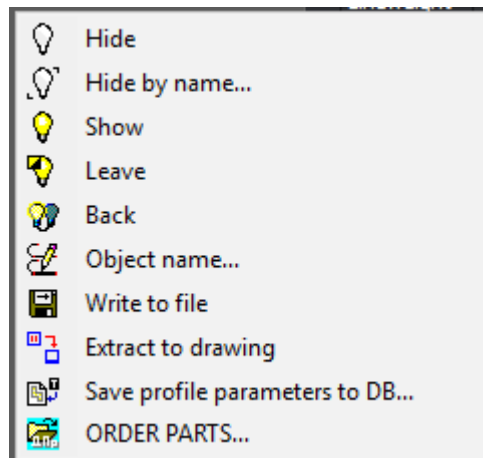




Figure 158

 - clicking on the icon triggers the application procedure, which is indicated on request in the command line, the BricsCAD primitives.

 - Clicking on the icon triggers the process of restoring the repaired BricsCAD primitives on the screen.

 - Clicking on the icon triggers a window shown in Figure 159.

In this window are:

- two switches - **Hide** and **Show**;
- list – **Partition\_Subpartition**;
- two switches - **Name** and **Group**;

- two buttons - **Execute** and **Exit**.

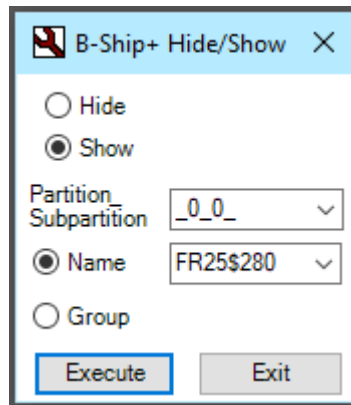


Figure 159

The lists reflect the layers of the current dwg file, which are formed by the naming rules of the model lines in the B-Ship+ system.

With an active **Name**, you can select **Partition\_Subpartition** and layer name from the corresponding lists.

When you press the **Execute** button, the active file primitives will be hide with an active switch **Hide** and restored with an active **Show** switch.

When the switch is activated, the Group window has a view shown in Figure 160.

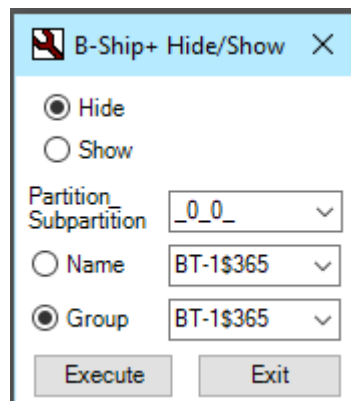




Figure 160

In this window, you should specify the **Partition\_Subpartition** and two names that will set the boundaries of the group of names from the top and bottom of the list. The top list shows the initial name, and the bottom of the list is the final name of the primitives in the given Partition\_Subpartition. Lists are sorted by the ascending of names.

When you press the **Execute** button, the primitives of the active file in a given range of names will be hide or show.

Exiting the window on the **Exit** key.

 - clicking on the icon causes all BricsCAD object to be hide on the screen except specified in the command line

 - clicking on the icon causes to perform the procedure of showing repaid primitives and hide the outstanding primitives of BricsCAD.





- Clicking on the icon triggers a window shown in Figure 161.

Figure 161

When you activated the switch **From the Table**, there are two lists in the window:

- the main list of proposed model names;
- an additional list that can be supplemented with your typical names, or you can remove unused names from it. To do this, there are two **Add** and **Delete**. When you click **Add** a preset name to the **Type** box to the additional list.
- If you click on the **Delete** button, the illuminated name is removed from the additional list;
- A section list that lists all the combinations of Partition and Subpartition of active drawing objects.

**Warning:** When you select a new value section in the list, the Partition and Subpartition will be updated. When you enter values in the Partition or Subpartition, and click the **Accept** list **Partition\_Subpartition** will be updated.

When you select a name on any list, it is copied in the **Type** box.

Under the type (name) are the **Number**, **Shift**, **Partition** and **Subpartition**. You need to enter values and click on **Enter** in these fields, and you can fill in the field - **Formed name**.

**Warning:** The name of the model line has the following components:

- type (FR, WL, BT, UD, FD, etc., only Latin are allowed, which are automatically transferred to the upper register);
- main line number (whole number, may have a negative sign);
- shift from the main line (non-negative whole, if it is zero, the bias is not reflected in the name);
- partition (whole number range from -32768 to 32767, sign plus not allowed);
- subpartition (whole number range from -32768 to 32767, sign plus is not allowed).

The activation of the **Move to a level** means that at the same time as the name is assigned to the orthogonal section, it will be moved to the level defined by the table of the current project's spacing table.

At the end of the name formation, you must click on the **Accept** button, after which the system issues a request:

->Specify the drawing objects:

The user must specify the objects that are known by any means permissible in the BricsCAD system environment. Once the objects are identified, they are transferred to a layer with that name. If the layer with the required name did not exist before, it is automatically created.

When the **By level** switch is activated, the window has a view shown in Figure 162.

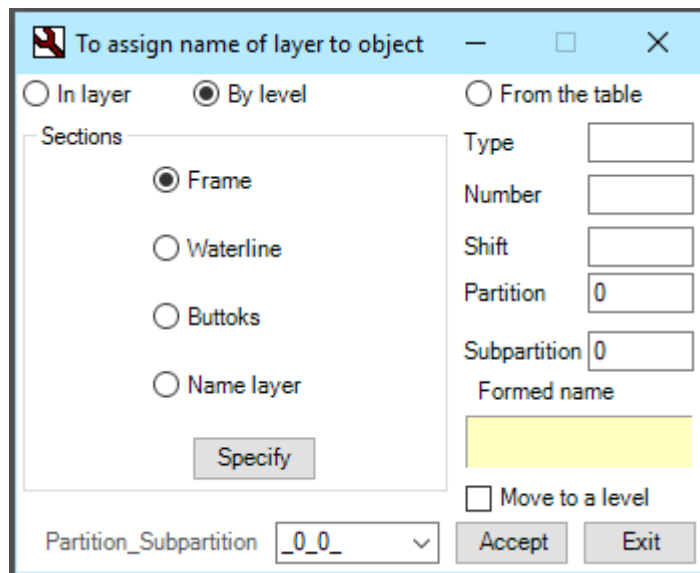


Figure 162

**Frame**, **Waterline**, **Buttoks** and **Name layer** switches are designed to select the appropriate type line from the drawing after clicking on the **Specify** button. If the line doesn't match the type of switch, the system sends a message about it, otherwise, by the name of the layer on which the line is located, the **Type**, **Number** and **Shift** fields are filled.

When the switch **In layer** is activated, the window has a view shown in Figure 163.

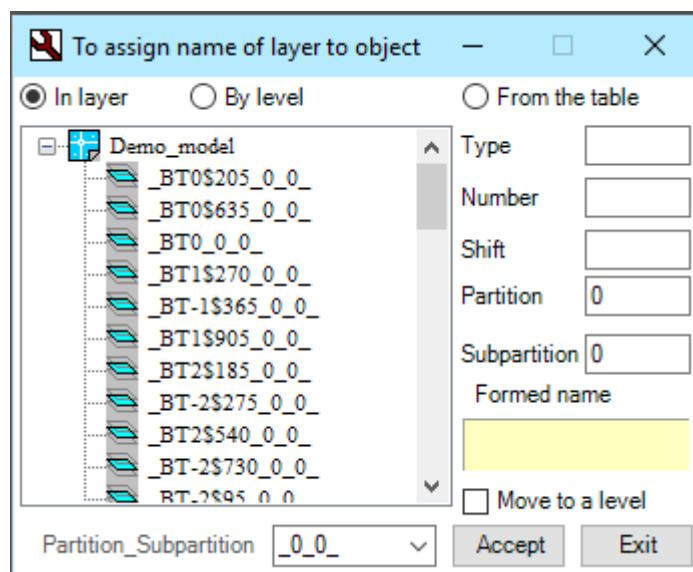


Figure 163

This window shows a tree of layers that are formed by the rule of forming the names of the lines of the B-Ship+ system. All layers are sorted by **Partition** and **Subpartition**, the list of which is shown under the window of the tree layers.

**Warning:** Choosing the appropriate combination from list of **Partition\_Subpartition** is rebuilt tree layers.

When you specify a item in a layer tree, you can copy the layer parameters to the **Type, Number, Shift, Partition** and **Subpartition**.

Exit from the window "To assign name of the layer to object" on the **Exit** button.

 - Clicking on the icon triggers the installation procedure in the drawing of objects.

A guide window (Figure 164) pops up on the screen, where you want to select the directories and assign the name of the .dwg file that will save the drawing objects.

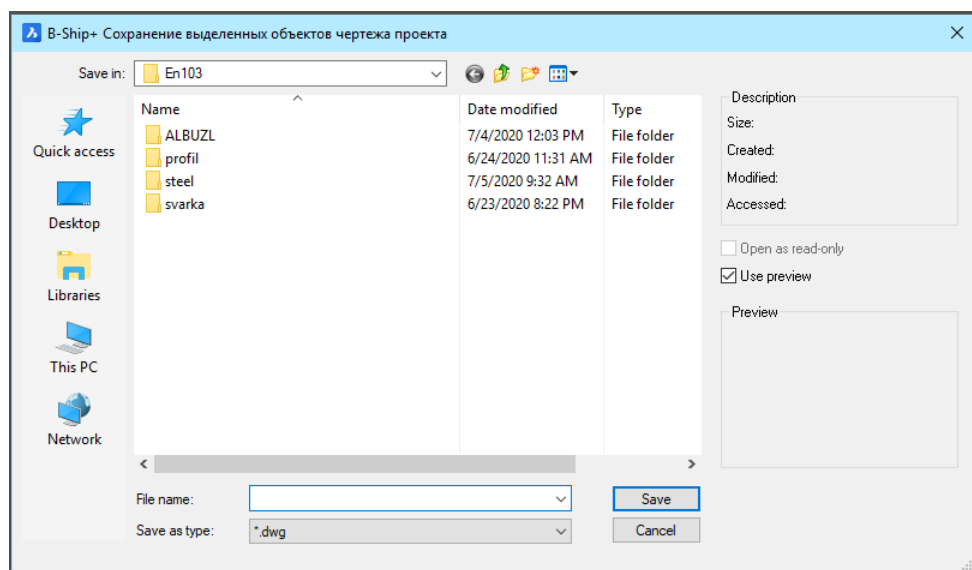



Figure 164

 - Clicking on the icon triggers the selection procedure in the drawing of objects. A new window is then opened and selected objects are copied into it.

 - Clicking on the icon triggers is activated the window has a view shown in Figure 165.

The command is designed to calculate and record in the Database materials of the profile parameters. The cross section of the profile should be drawn on the screen.

At the same time:

- it is necessary to build in a new (empty) drawing;
- when targeting a profile in the window interface, the profile is oriented as it is set in the appropriate variety (for example, for asymmetric bulb - thickness to the right of the OY axis, the head is turned to the right);
- it is recommended to install a profile to point 0.0. and position of the wall precisely to steer along the axis OY.

Figure 165

The Command Recording Parameters in the Database allows you to calculate the following parameters of the profile:

- the height of the profile,
- the width of the head,
- the thickness of the wall,
- the area of the cross section,
- coordinates the center of gravity.

The control window selects the right profile number, calculates the settings displayed in the window, and records the section parameters in the materials database.

The dialogue of the graphic editor when you click on the **Calculation** button

*->Specify the profile section contour line:*

you need to specify the profile section outline line.

*->Specify a point on the wall to set the thickness:*

you must specify an arbitrary point on the profile wall.

*->Specify a point on the opposite side of the wall:*


you must specify the second point on the opposite wall of the profile.

An indissoluble calculation will be made. The calculated settings will appear in the control window.

Entry in the DB Materials is performed on the **Save in DB** button in the database.

The recording procedure requires the need to preserve, along with the cross-section parameters, the sectional line. If the user confirms the need for a record, then in the folder *...BSHIP\Projects\<name project>\profil* the current drawing file with the outline line is recorded. The file name is taken material kode from the materials database. The *profil* folder is created automatically.

**Warning:** After the command is completed (exit from the **Exit** button window), the current open drawing closes.

 - Clicking on the icon triggers a B-Ship+ window (order folder ...), shown in Figure 166.

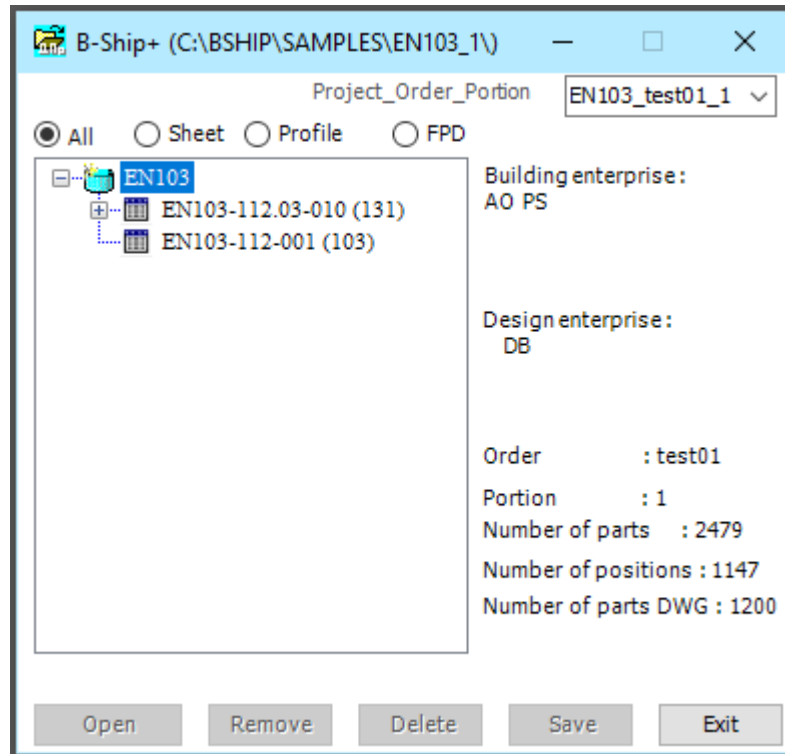


Figure 166

This window contains:

- a drop-down list **Project\_Order\_Portion**;
- a tree parts of the drawings;
- requisites of detail viewing zone;
- activated **Exit** button.

**Warning:** The window contains folding/deployment buttons. The window can be enlarged, to do this, you need to stretch the edge of the window.

**Warning:** The **Project\_Order\_Portion** list shows projects that are in operation and registered to an active user in the **BDATA** module.

When stepping up in the project tree in the area of viewing the details are shown the name of the enterprise-builder, the enterprise-design, the number of items in the order database, the number of positions in the order database, the number of files recorded in the database of the order type dwg.

If the **BDATA** module has an active drawing, or the drawing was done in the previous session, when the drawing specification is selected in the tree, the window will have the view shown in Figure 167.

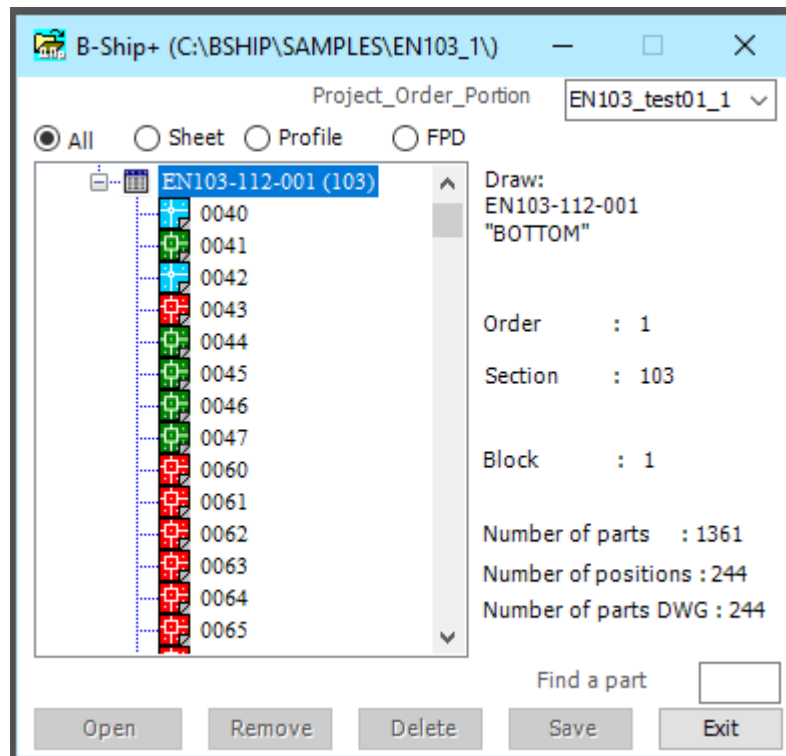


Figure 167

The props view shows the full name of the drawing, the order number, section number, block number, the number of parts in the drawing, the number of positions in the drawing, the total number of dwg files recorded in the database in this drawing.

At the bottom left of the window is the input box **Find a part** to quickly search for a given position in the tree, you need to enter the number and click Input. If the mouse is "double clicked" in the input box, the window will have the view shown in Figure 168.

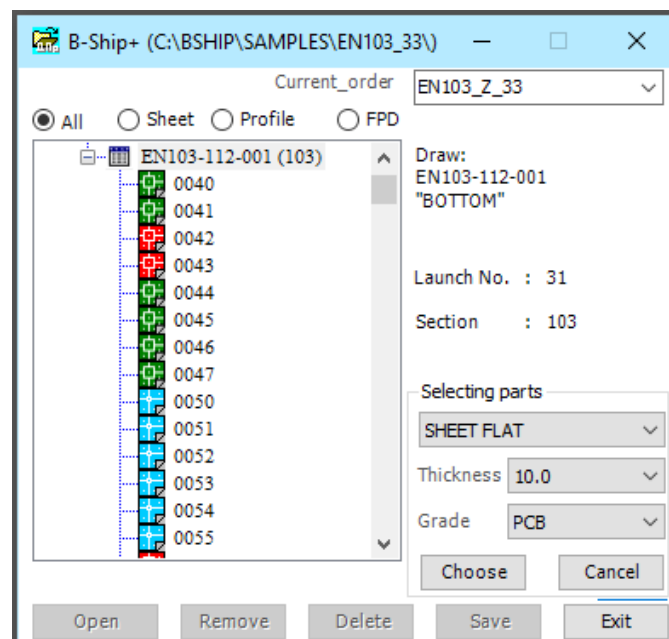


Figure 168

In **Selecting parts** window, you can choose in the respective lists depending on the material **thickness/profile number** and the **Grade** and click on the **Chose** button.

**Warning:** There are empty lines in the **thickness/profile number** and the **Grade** lists, the choice of which means that the value of these props can be any when selecting in the database.

After rebuilding, the drawing tree will contain only parts with a given material.

To activate the parts of another drawing in the tree, you must either "click" into the position or, by specifying the drawing, activate one of the switches: **All**, **Sheet**, **Profile**, or **FPD**. With an active switch, **All** in the part tree will show all parts of the drawing. With an active switch **Sheet** will be shown only sheet parts, with an active **Profile** switch - only details from the profile material, with an active switch **FPD** - sketches of TNCs.

With an active switch, **All** indication of the right mouse key in the drawing tree at the Ctrl key pressed, triggers the process of forming a DB drawing according to data from the TRIBON system, pre-necessary:

get files for import type .xls and .dxf ;

check the .xls file for a list of **ДАННЫЕ**;

File .dxf check for bugs downloading to BricsCAD and running the utility Audit, then save the file as .dwg;

According to the **ТИТУЛЬНЫЙ ЛИСТ** in the .xls file in the **BDATA** module, the system will enter the data on the new drawing;

According to the **Сводные данные** on the **СПЕЦИФИКАЦИЯ** sheet in the **BDATA** module, check for availability and enter new data into the materials classifier.

**Warning:** Sample files are listed in the directory

When performing the procedure forms in the window shown in figure 169, a request for it-porting of data.

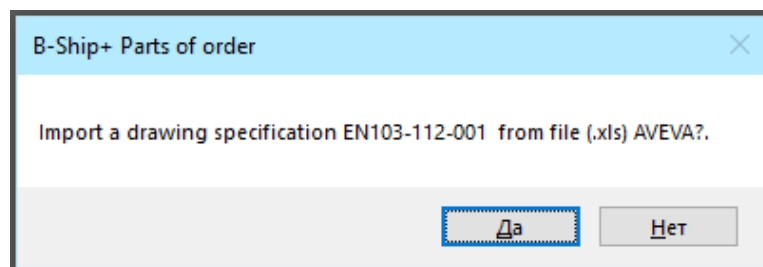


Figure 169

When you press the **Yes** button, the conductor's window pops up, where you have to select the corresponding .xls file and press the **Open** button.

A window (Figure 170) pops up on the screen

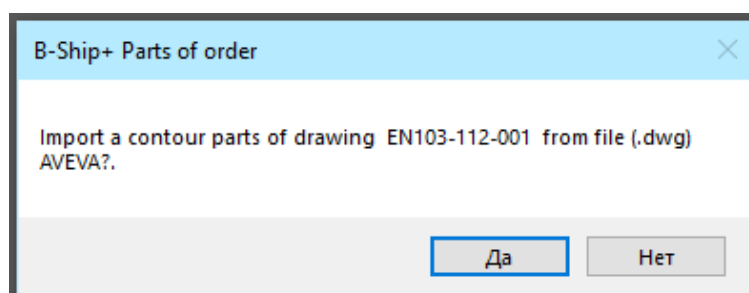


Figure 170

When you press the **Yes** button, the conductor's window pops up, where you have to select the corresponding .dwg file and press the **Open** button.

**Warning:** When you press the **No** button in the window (Figure 168), there is no importation of the contours of the parts.

Then there is the process of receiving data.

You have to wait until the end of the procedure (the command line is complete).

The drawing is filled with data, the painted item of the drawing tree means that there is a black-than detail.

**Warning:** Because the details of the drawing data are not adapted to the requirements of the BSHIP system, you need to adapt (layers, labels, etc.) or use them as workpiece a model in the model environment.

**Warning:** To update the specification tree, when you change the drawing database, you must specify another drawing in the mouse specification tree for the new loading of the drawing specification tree.

To quickly search for a position in the details tree, you need to enter the position number in the **Find a part** entry box and click on the <enter>.

When the part position is indicated in the tree, the window will have the view shown in Figure 171.

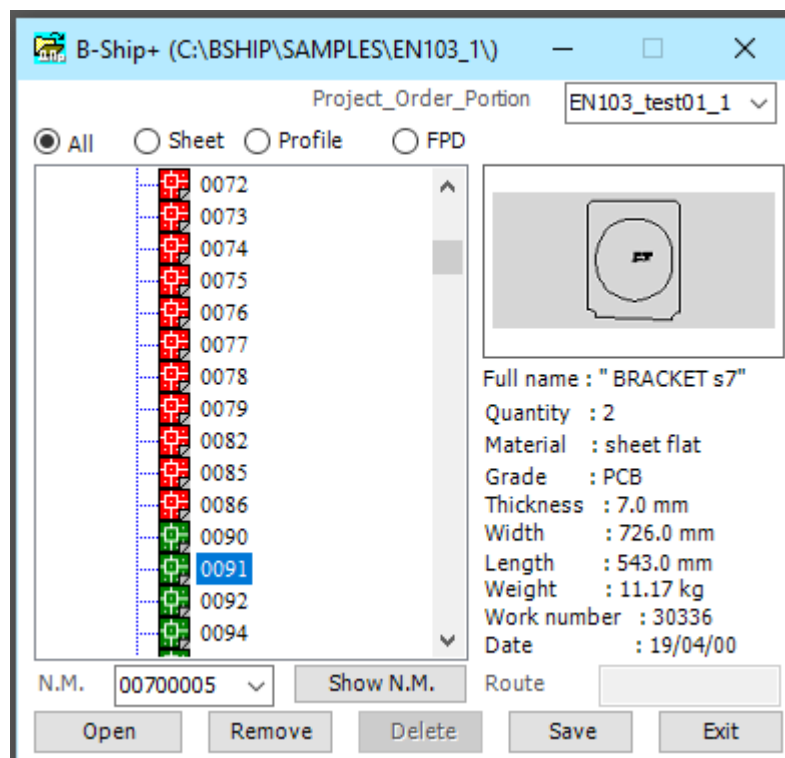


Figure 171

In this window there is a window to view the primitive look of the part, and in the view window of the requisite data of the database:

- full name of part;
- the number of details for this position;



- the kind of material of the part;
- the grade of the material;
- the thickness of the material (for the profile - profile number);
- width (profile height)
- length of the part;
- weight of 1 part per kg;
- work number;
- date of the file record.

In the part tree, the position icon is shown as a white square if the dwg file for the part is not in the database, and if there is one, it is in the form of a dwg file icon. If the part has already got into the cut map, the color of the pictogram is green. If the part was recorded in the DB in the PART module color then the color of the pictogram is red, and if the color of the pictogram is blue, the part was recorded in the MDET module and requires appropriate technology and subsequent recording in the database.

For the detail specified in the tree, in the list of N.M. (Nesting Maps), if the part has been cut, a list of the cards of the cut, which included this detail, is shown.

When you select a nesting map, you can call it on the screen by pressing the **Show N.M.** button and remove it from the screen by clicking on the button with the inscription **Remove N.M.**

**Warning:** If the cut part needs to be corrected, it must be removed from the project's Dwg catalog or temporarily renamed manually.

If you want to do the right-hand work with the drawing details group, you need to specify the part in the mouse's "right button" tree. At the same time, the project details window will have the view shown in Figure 172.

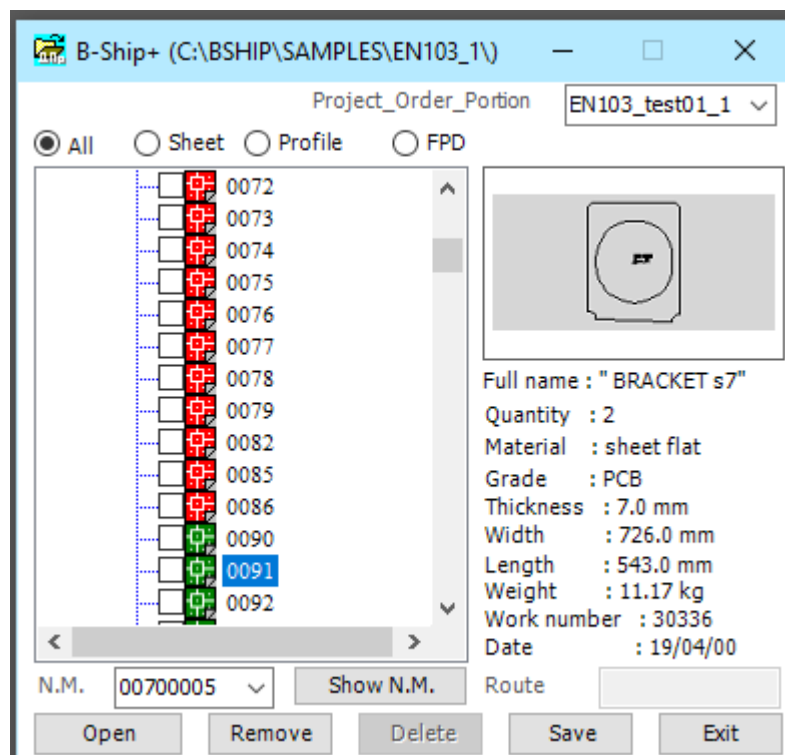


Figure 172

In the tree there were additional pictograms in the form of empty squares. When you click a mouse into a square, you'll see a mark. If you re-click with the mouse, the mark is removed into the square.

Perform procedures when you click on the **Install**, **Remove**, and **Delete** orientation-vans only on a group of marked parts.

When the mouse re-enters the tree with the "right button", the details of additional pictograms for the group sample are removed.

To install the part selected in the tree on the screen, you need to press the **Open** button, and when you press the button **Remove** the part removed from the screen.

If the part is not cut, the **Delete** button is unlocked and a message in Figure 173 pops up when you click on it.

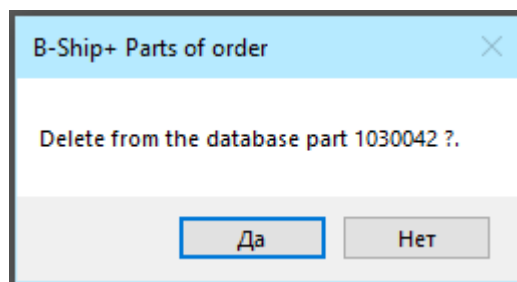


Figure 173

When you click on the **Yes** button, the dwg-type file will be removed from the database.

If you light up the drawing in the tree to specify the part in the mouse's tree with the "right button" and press the **Delete** button, the window appears on the screen, shown in Figure 174.

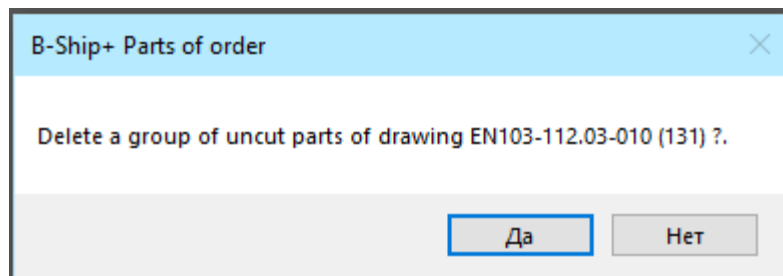


Figure 174

When you press the **Yes** button, the dwg-type drawing details will be removed from the database, for the key to the details that have already entered the cards.

If you highlight the position with a "double click" of the mouse in the tree, the window-but shown in figure 175 pops up on the screen.

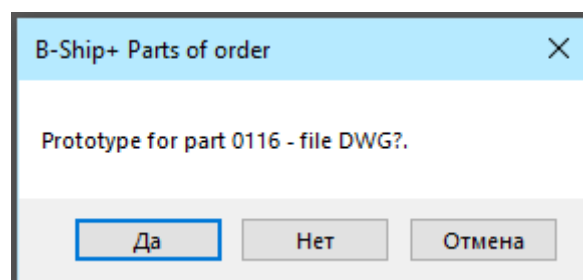


Figure 175

When you press the **Yes** button, which means that the prototype will use the previously created and recorded in the database details of the type dwg, then the screen pops up a window, in which you need to specify the file details of the prototype and press the **Open** button.

If you press the **No** button, it means that the prototype selects the part of the project details tree, in which case the window will have the view shown in Figure 176.

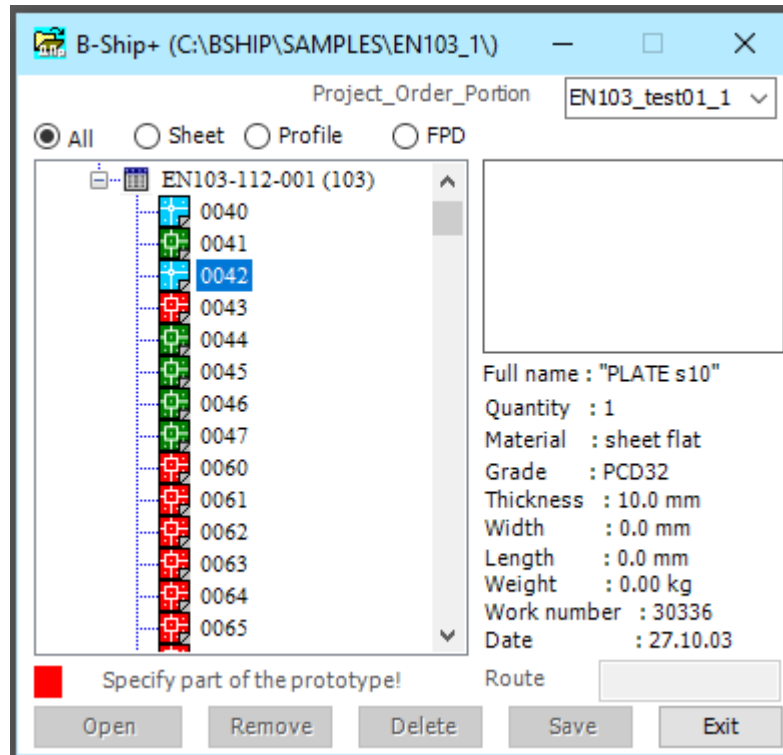


Figure 176

In the bottom left corner of the window lights up a red square and the inscription "**Specify part of the prototype!**" appears. It is necessary to specify the position of the prototype part in the project parts tree.

**Warning:** If you don't need to install a prototype, click on the red square.

If the position of the prototype part is specified, the **Save** down button is unlocked.

When you press the **Save** button, you call the process of recording the part.

If the dwg file is not in the database, the screen pops up the window shown on the Figure 177.

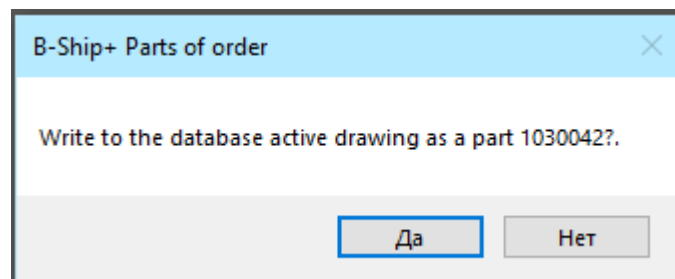


Figure 177

If you click on the **Yes** button, the active drawing will be recorded in the database as a detail specified in the tree.

If the details file exists and has been called to the **Install** button, it will be re-recorded when recording.

When a drawing or a group of details is shown in a tree, the recording process rewrites existing files to reflect those installed on the screen. In this way, the existing details files can be adjusted.

Лист регистрации изменений									
Изм.	Номера листов (страниц)				Всего листов (стр.) в до- кументе	Номер доку- мента	Входящий № сопроводит. доку-мента и дата	Подпись	Дата
	измененных	замененных	новых	аннулирован- ных					