CAD/CAM System B-Ship+

Version 5.0

Module Bdata

Work with basic data

User manual

BSHIP.00014.005-2022

Sheets 81

Saint Petersburg
2022

ANNOTATION

The document is a reference manual for work with the module **Bdata** of the **B-Ship+** system. The manual includes description of menu, commands, user interface, themes of interaction with other modules of the system.

Document is designed for specialists who run **B-Ship+** system for the design and technological preparation of the ship hull production and have practical experience of using BricsCAD and AutoCAD graphical systems. **B-Ship+** is informationally compatible with the systems **Ritm-Ship** (AutoCAD), **R-Ship+** (AutoCAD), **N-Ship+** (nanoCAD).

Recommended operating systems are: Windows 8.1, Windows 10.

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Web site of developers: **http://poleshchuk.spb.ru/cad/2016/bshipe.htm**
Bricsys application store:
https://www.bricsys.com/applications/a/?bship-a1402-al2424

Contents

1. GENERAL INFORMATION

1.1. Agreements and terms

This guide uses the following font agreements:

Italic – names of folders, files and extensions, additional text to graphical editor requests in commands;

Bold – names of modules and system components, menus, items, buttons and keys, commands in the dialog with graphical editor;

CAPITAL – names of layers, software commands and named objects.

For shortness everywhere in the document system **B-Ship+** will be named **B-Ship**.

1.2. Module designation

Module **Bdata** is designed for work with database tables, as well as for running some reference and verification actions.

DB tables (DBF files) are divided into general tables and order tables. General tables are located in the root folder of the system (usually *BSHIP*): dbf_stru.dbf, foxuser.dbf, interpol.dbf, metal_group.dbf, otxod.dbf, prf_crit.dbf, prkt_ckb.dbf. They are packed inside installation file, with default contents.

For scraps table otxod.dbf there is an opportunity for specifying individual location path for the purpose of storing data of several orders (parameter *scrapsbrics* in Windows registry).

One more general table plants.dbf is placed in the folder *BSHIP\Plants_settings*. Usually it contains name of the shipyard being customer of this copy of the system **B-Ship**. Developer can add to the table other plants (shipyards).

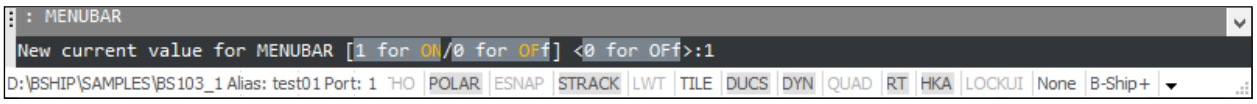
Order tables include the following files: alb_details.dbf, alboms.dbf, det_zak.dbf, draws.dbf, g_svmrsc.dbf, gabcentr.dbf, ids.dbf, klsmater.dbf, kodyoper.dbf, kr_list.dbf, modeli.dbf, parrezki.dbf, sign_par_object.dbf, specp.dbf, spr_gsr.dbf, teh_oper.bdf, users.dbf, vid_mat.dbf. While creating new order the fables are filled with the default data.

2. USER INTERFACE

2.1. Main menu

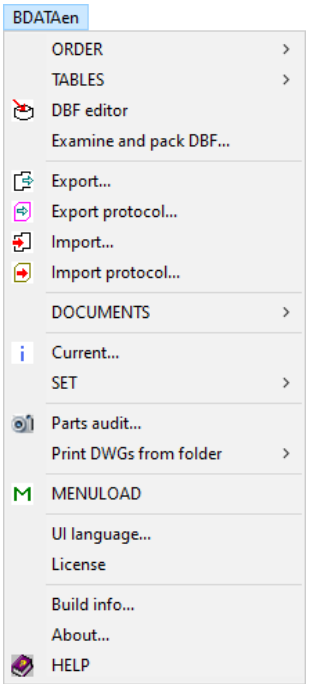
B-Ship system has drop-down (popup) menus containing commands of system modules. Ribbon is not used.

To load popup menus of all the modules one should click button **B-Ship+** at the end of the status bar (dr. 1). At this moment menu bar must be visible (MENUBAR = 1).



Drawing 1. Status bar with button **B-Ship+**

Module **Bdata** has a popup menu, which name consists of BDATA and two-symbols suffix denoting current localization language: en (English), ru (Russian). But for universality everywhere in the document **BDATA** name is used instead of **BDATAen**, **BDATAru** (dr. 2).

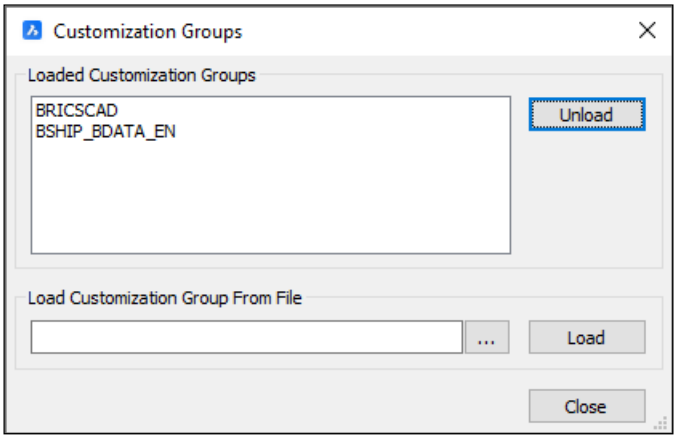


Drawing 2. **BDATA** menu

Note. Menu **BDATA** is a partial menu (customization menu group) added to the main menu of the graphical system. That's why **BDATA menu must not be loaded as a main menu** (with MENU command)! Otherwise user will lose access to commands of the graphical editor.

Loading only **BDATA** menu as a partial menu can be made with the MENULOAD command typed on the keyboard, or called by BricsCAD menu item **Tools > Menuload**.

Dialog box **Customization Groups** (dr. 3) is opened by MENULOAD command:

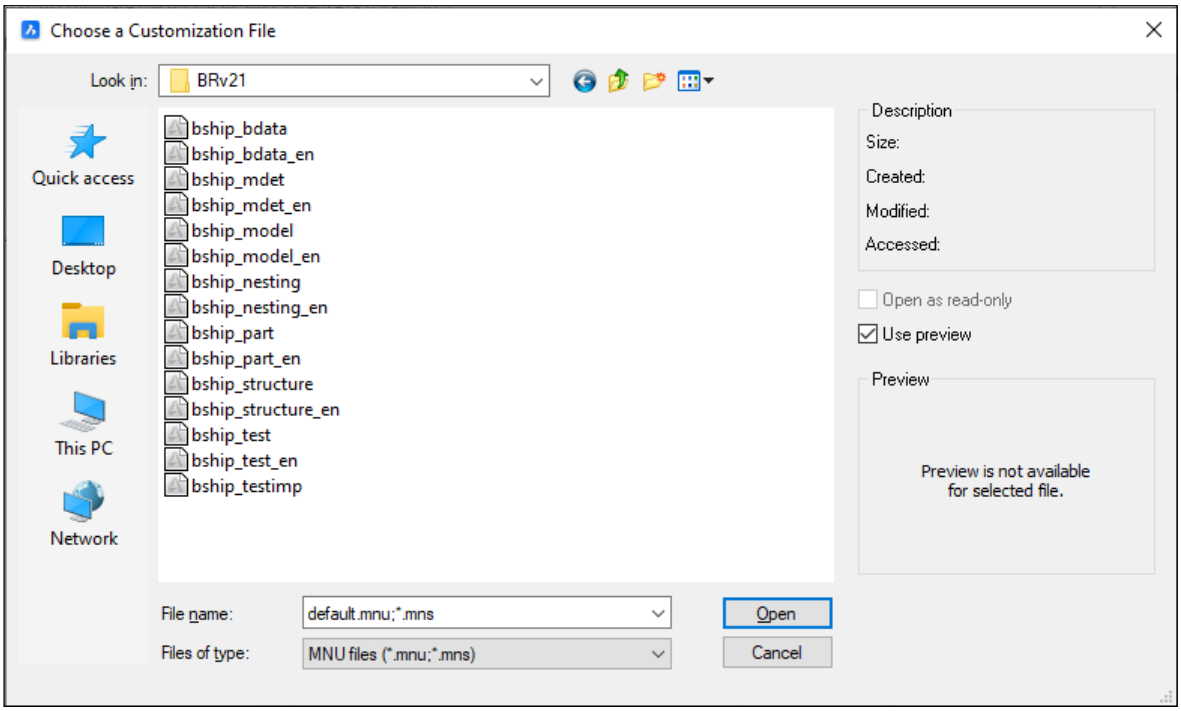


Drawing 3. Dialog box **Customization Groups**

This dialog is used for both loading and unloading partial menus. Partial menus of the **B-Ship** system in the window are named in the following manner: BSHIP_BDATA_EN (module **Bdata**), BSHIP_MODEL_EN (module **Model**), BSHIP_STRUCTURE_EN (module **Structure**), BSHIP_PART_EN (module **Part**), BSHIP_NESTING_EN (module **Nesting**), BSHIP_MDET_EN (module **Mdet**). Menu names of the Russian version do not have _EN suffix, e.g. BSHIP_BDATA, BSHIP_MODEL.

If the required menu is missing in the list **Loaded Customization Groups** then it should be loaded by pressing button ... . Window **Choose a Customization File** opens (dr. 4).

In the field **Folder** set folder *BSHIP\Sys\BRv<No.>* (for graphical editor BricsCAD v21 <No.> must have value 21, for v20 it is 20). By default the field **Files of type** has value **CUI files (*.cui)**, so change it to **MNU files (*.mns, *.mns)** as shown on dr. 4.



Drawing 4. Window **Choose a Customization File**

The dialog presents all the MNU files, they are placed in *BSHIP\Sys\BRv21* folder (on example of **B-Ship** for BricsCAD v21). For module **Bdata** menu select the file bship_bdata_en.mnu and click button **Open**. System will generate file bship_bdata_en.cui and load menu **BDATA** into menu bar.

Access to module program tools is realized not only from the popup menu **BDATA** but also from the toolbars **DB tables**, **Documents**, **DB and tools**, **Projects and orders** (dr. 5).

Drawing 5. Toolbars of the module **Bdata**

2.2. User interface language localization

B-Ship system is distributed with various versions of interface language, and language can be changed during work process (but graphical kernel language of BricsCAD inside which **B-Ship** was launched, cannot be changed).

The most popular cases are English and Russian languages. Changing of interface language is made with menu item **BDATA > UI language**. Dialog box **Select user interface language** (dr. 6):

Drawing 6. Window **Select user interface language**

Select language and press button **Apply**. If successful then a message will be output, e.g.: **Current language set to Russian**. After that all the functions and commands will use textual resources in a new language.

If in the current installation the requested language is not included then a warning will be shown, e.g.: **Language Spanish is not implemented in this version**.

2.3. Running commands

Main ways of accessing module commands are drop-down (popup) menu **BDATA** (see dr. 1) and toolbars (see dr. 5). Popup menu comprises the following submenus and items:

- **ORDER** – submenu for operations with orders (order = project portion);

- **TABLES** – submenu for operations with DB tables (except orders registry);

- **DBF editor** – command for launching universal editor of DBF tables;

- **Examine and pack DBF** — command for exploring unused space inside DBF file and for packing file if necessary;

- **Export** – command for export of order fragment to an intermediate folder;

- **Export protocol** – command for reading export protocol;

- **Import** – command for import of data from an intermediate folder to the current order;

- **Import protocol** – command for reading import protocol;

- **DOCUMENTS** — submenu for forming documents (lists, tables etc.);

- **Current** — output of **B-Ship** current settings;

- **SET** — submenu for additional operations with geometrical model objects;

- **Parts audit** — command for verification of part DWG files structure;

- **Print DWGs from folder** — submenu of printing operations for DWG files;

- **MENULOAD** — command MENULOAD for loading **B-Ship** drop-down menus;

- **UI language** — command for selection of a new **B-Ship** interface language;

- **License** — output for names of modules with active licenses and time (in hours) left to the end of temporary license;

- **Build info** — output of the system build data;

- **About** — output of program details and developers information;

- **HELP** — help command for module **Bdata**.

Note. The commands of BricsCAD itself (localized version) can be entered in English or in localized mode. Similarly command options may be English or localized.

3. WORK WITH ORDERS

3.1. Commands of ORDER submenu

Order is the main information unit of **B-Ship**. Order is a fragment of full ship DB that is a closed portion including models, parts, nesting maps, numerical programs and technological documents for parts manufacturing. Order is numbered by project No. (up to 8 symbols, only digits and latin letters) and project portion (up to 3 digits) connected with underscore symbol, e.g.: BS103_41. A launch number can be used as a number of portion (but it is not obligatory).

Orders are registered in orders registry (table prkt_ckb.dbf). Actual work is being run only with a single order that is marked as active (current). There is an opportunity to hide those orders that are not required now in real work.

B-Ship installer includes test orders: EN103_33, BBBBB_2, BS103_1 with parts and sheet nesting maps.

Each order has a separate folder (often root but it is not obligatory, only path should not be very long). It includes 14 inner folders: *Dbf*, *Doc*, *Dwg*, *Idx*, *Idx2000*, *Karty*, *Model*, *Pl*, *Polka*, *Shablon*, *Solids*, *Tnk*, *Tnk_krt*, *Users*.

These folders are the most important:

Dbf — for DBF tables with textual data of the order and for auxiliary files (with extensions *cdx*, *fpt* etc.);

Dwg — for DWG files with geometry of order parts;

Karty — for DWG and SLD files of order nesting maps of sheet parts;

Pl — for numerical control (NC) programs (cutting, marking etc.) of parts manufacturing;

Shablon — for DWG files with geometry of bending templates;

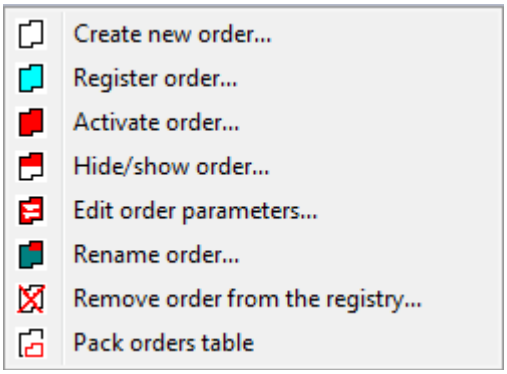
Solids — for DWG files of solid representaion for parts;

Tnk — for DWG files of part sketch TNCs (technological norming cards in forms);

Tnk_krt — for DWG files of sheet nesting maps TNCs;

Users — for subfolders connected with every user taking part in this order, storing some settings files.

In submenu **ORDER** there are items for operations with orders (dr. 7):

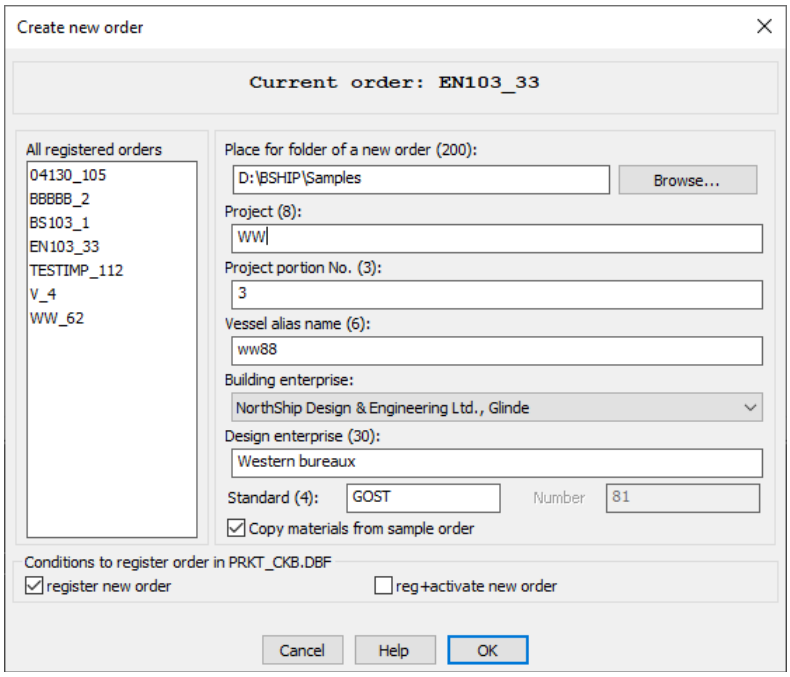


Drawing 7. Submenu **ORDER**

Command of the submenu **ORDER** also can be accessed from the toolbar **Projects and orders** (see dr. 5).

3.2. Create new order

Use menu item **Create new order** (see dr. 7) and button  to create an order and its folders. The command opens dialog box **Create new order** (dr. 8).



Drawing 8. Dialog box **Create new order**

In the left zone there is an alphabetically sorted list of all the orders (including hidden) that were registered in the orders registry (general table prkt_ckb.dbf).

New order can be created with registering in the orders registry (if checkbox **register new order** is set) or without registration (if checkbox **register new order** is cleared). If order is created with registration then it can be simultaneously activated (for this set checkbox **reg+activate new order**).

Order needs seven parameters to be filled:

Place for folder of a new order (200),

Project (8),

Project portion No. (3),

Order alias name (6),

Building enterprise,

Design enterprise (30),

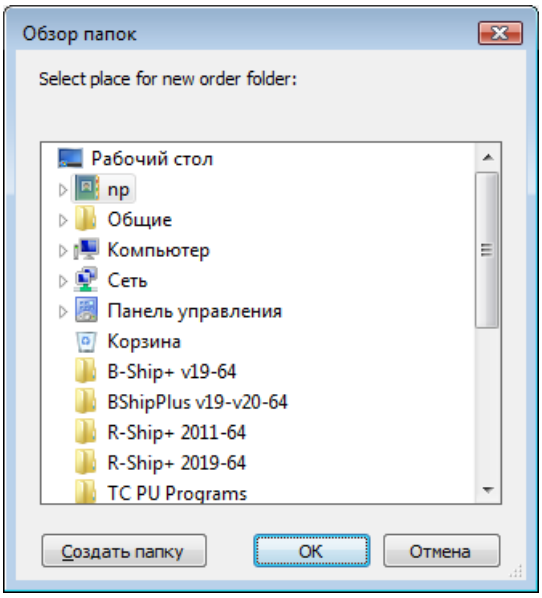
Standard (4).

Numbers in brackets indicate maximal allowable number of symbols in the parameter. Spaces at the beginning and at the end are skipped. Project name allows only digits and latin letters (low case symbols are converted to upper case). Portion number may consist from digits only.

Name of building enterprise is not entered but selected from the combobox with values read from the table BSHIP\Plants_settings\plants.dbf.

Real path to order folder is formed by connecting the path from **Place for folder of a new order** (e.g. E:\new) and folder name of type <project>_<portion> (e.g. 3290_192): **E:\new\3290_192**. While filling **Place for folder of a new order** it is rec-

ommended to use button **Browse** that calls auxiliary window for folder selection (dr. 9).



Drawing 9. Window **Browse for folders**

If necessary user can create folder with the button **Create folder** (Создать папку).

If errors are found in the data for new order then messages are written to the info line over the buttons **OK**, **Cancel** and **Help** (see dr. 8). After successful creation of order the following messages are generated (on sample order 3290_192):

E:\new\3290_192\DOC E:\new\3290_192\DWG E:\new\3290_192\IDX E:\new\3290_192\IDX2000 E:\new\3290_192\KARTY E:\new\3290_192\MODEL E:\new\3290_192\PL E:\new\3290_192\POLKA E:\new\3290_192\SHABLON E:\new\3290_192\SOLIDS E:\new\3290_192\TNK E:\new\3290_192\TNK_KRT E:\new\3290_192\users E:\new\3290_192\users\1 has been created.

1.det_zak: 2.draws: 3.g_svmrsc: 4.gabcentr: 5.ids: 6.klsmater: 7.kodyoper: 8.kr_list: 9.modeli: 10.parrezki: 11.sign_par_obj: 12.specp: 13.spr_gsr: 14.teh_oper: 15.users: 16.vid_mat:

New order tables created in folder E:\new\3290_192\DBF.

Order 3290_192 has been registered and has become visible.

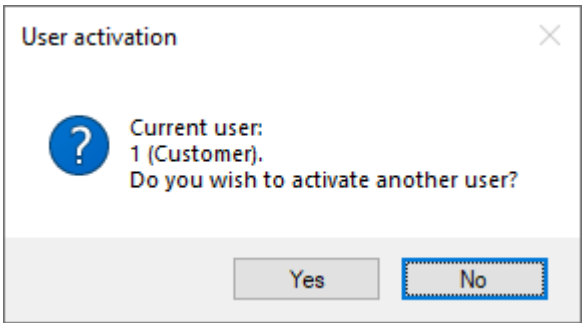
Order 3290_192 has been activated.

In each active order there must be set current (active) user, and all the future operations in the order will be connected with him. The default user in the new order has working number 1 and name Customer. By default he is set as current (active) user.

If in the window **Create new order** (see dr. 8) the checkbox **reg+activate new order** was set, then after order creation the system suggests activation of another user (dr. 10).

If click button **Yes**, then program opens window **View and edit users table**, with possibility of creation and activation of new user. This windows is discussed later (p.4.2).

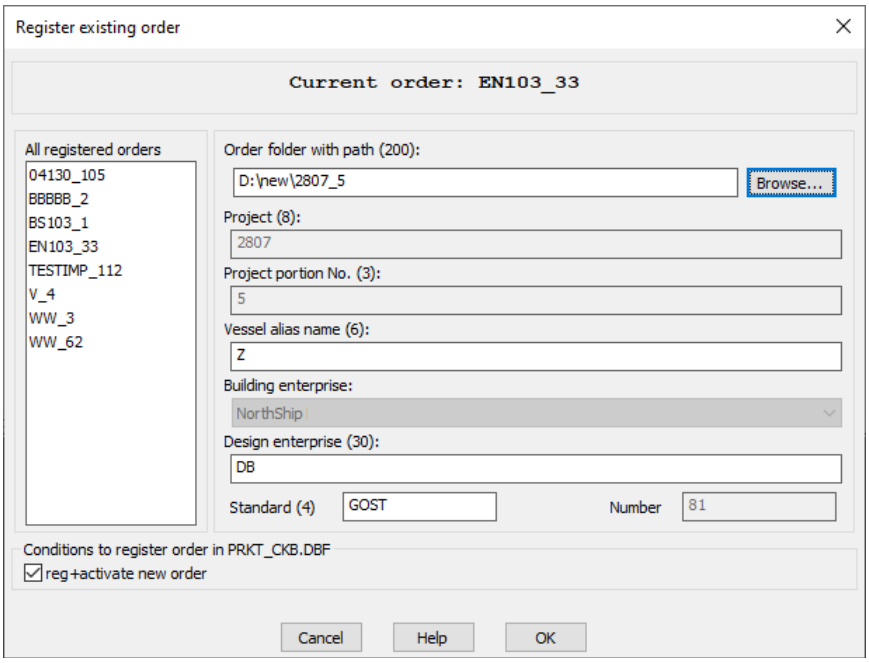
Reply **No** leaves user with working number 1 as active.



Drawing 10. Request for another user activation

3.3. Register order

Earlier created but unregistered order can be registered with menu command **Register order** (see dr. 6) and with button . Command opens dialog box **Register existing order** (dr. 11).



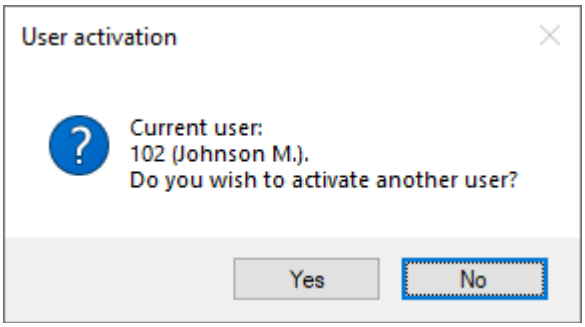
Drawing 11. Dialog box **Register existing order**

In the right part user must enter a valid parameter **Order folder with path (200)** including project number and portion numer of the existing order. It is recommended to do it with the button **Browse** opening auxiliary window **Browse for folders** (see dr. 8). For better management in the left part there is an alphabetical list of all earlier registered orders (including hidden).

The order to be registered can be activated at once (set checkbox **reg+activate new order**). In this case the system sets active the first user of the table users.dbf in the activated order and suggests activation of another user (dr. 12).

If click button **Yes**, then program opens window **View and edit users table**, with possibility of creation and activation of new user. This windows is discussed later (p.4.2).

Reply **No** leaves shown user active.



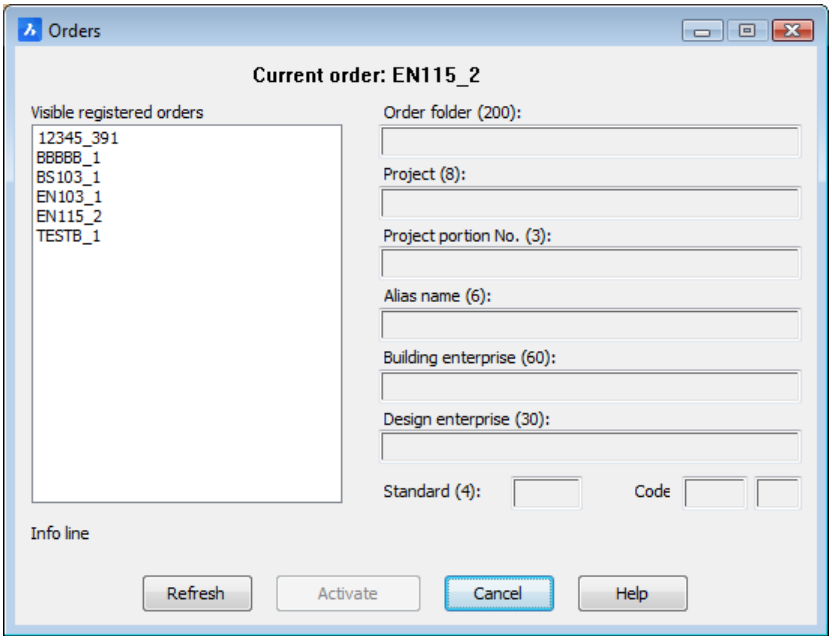
Drawing 12. Request for another user activation

3.4. Activate order

Earlier created and visible registered order can be activated with **Activate order** item (see dr. 7) and button  .

Remark. See p.3.5 to change order visibility. Hiding orders is useful if there are many members in the orders registry.

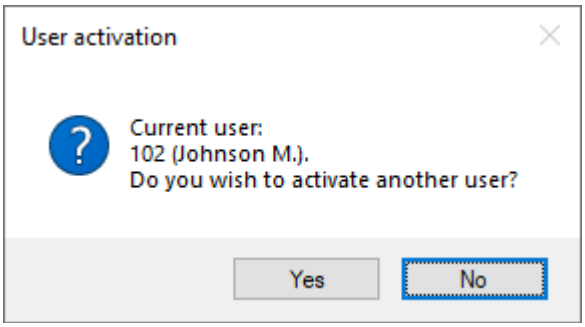
Activation command opens dialog box **Orders** (dr. 13). In the start state the **Activate** button is disabled.



Drawing 13. Dialog box **Orders**

In the left part of the window user must select the order to be activated (it should not be a current order shown in the upper part of the window). In the right part order parameters are automatically filled (**Order folder (200)**, **Project (8)**, **Project portion No. (3)**, **Alias name (6)**, **Building enterprise (60)**, **Design enterprise (30)**, **Standard (4)**, **Code** of document forms and internal shipyard number). The **Activate** button becomes enabled. Click **OK**. Result will be shown in the dialog info line and **in** the command line of the graphical editor (*Order <...> activated.* or *Order not activated*).

By default after activation system sets active the first user of the table users.dbf in the activated order and suggests activation of another user (dr.14):



Drawing 14. Request for another user activation

If click button **Yes**, then program opens window **View and edit users table**, with possibility of creation and activation of another user. This windows is discussed in p.4.2.

Reply **No** leaves shown user active.

Attention! Window **Orders** (see dr. 13) is modeless (user can run other commands without closing dialog). The window has minimizing button.

Due to window modeless state user has an opportunity for parallel creating, hiding and removing orders (e.g. with the **Projects and orders** toolbar). Therefore to see the valid contents of orders list it is recommended from time to time to press **Refresh** button, it will actualize the list in the left part of the window (hidden and deleted orders will disappear, newly created ones will be added).

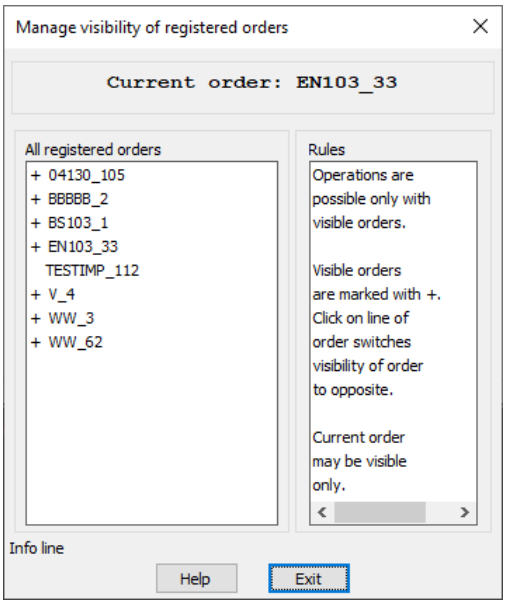
If without refreshment user will try to activate an order that has been already removed or hidden then the user will get a message in the info line:

Order is hidden or deleted.

3.5. Manage order visibilty

Any registered order can be hidden. It is usually done for those orders that will be unused in the nearest time.

For order that is hidden no operations (activating, deleting, renaming etc.) can be done up to the moment when the order will change its status to visible. To hide order or to return visibility to it use menu item **Hide/show order** (see dr. 7) and button  . The command opens dialog box **Manage visibility of registered orders** (dr. 15).



Drawing 15. Dialog box **Manage visibility of registered orders**

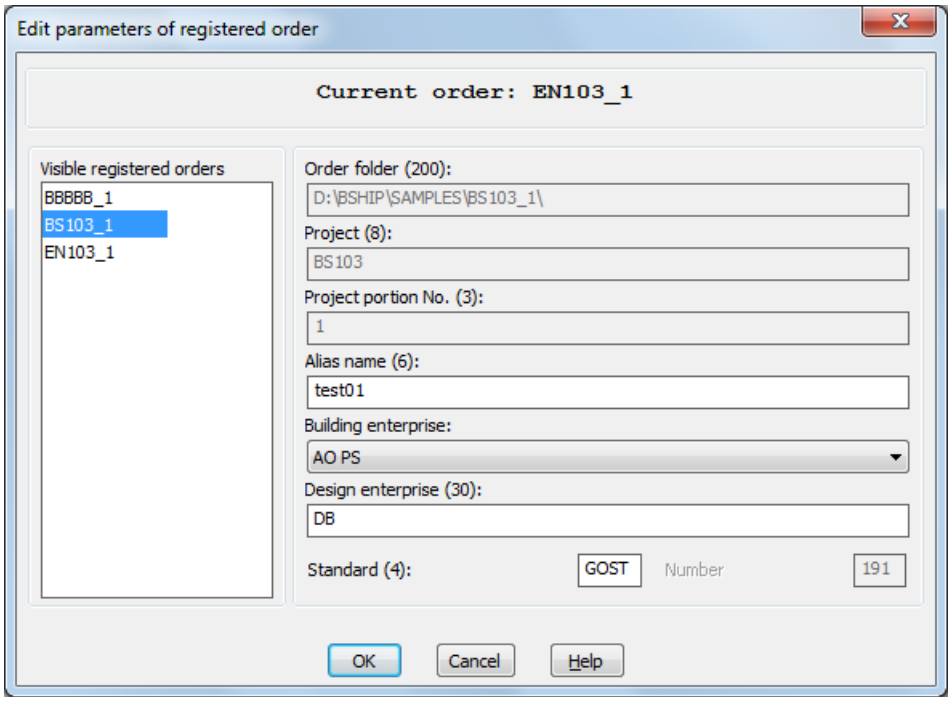
In the left part of the window there is a list **All registered orders**. It contains both visible and hidden orders. Visible orders are marked with the sign + (plus). In the area **Rules** there are rules for hiding order and for returning visibility.

To change order status (from visible to hidden or hidden to visible) it is sufficient to left-click on the required order. Information about commited action iis displayed in the info line (over buttons).

Attention! Current order cannot be hidden.

3.6. Edit order parameters

Parameters of registered, visible and inactive (non-current) order can be edited with the item **Edit order parameters** (see dr. 7) and with button . Command opens dialog box **Edit parameters of registered order** (dr. 16).



Drawing 16. Dialog box **Edit parameters of registered order**

User must select order to be edited in the left part and enter new values in the right part. Press **OK**.

Only four parameters may be edited in this window. Changing project name and portion number should be done in renaming order operation.

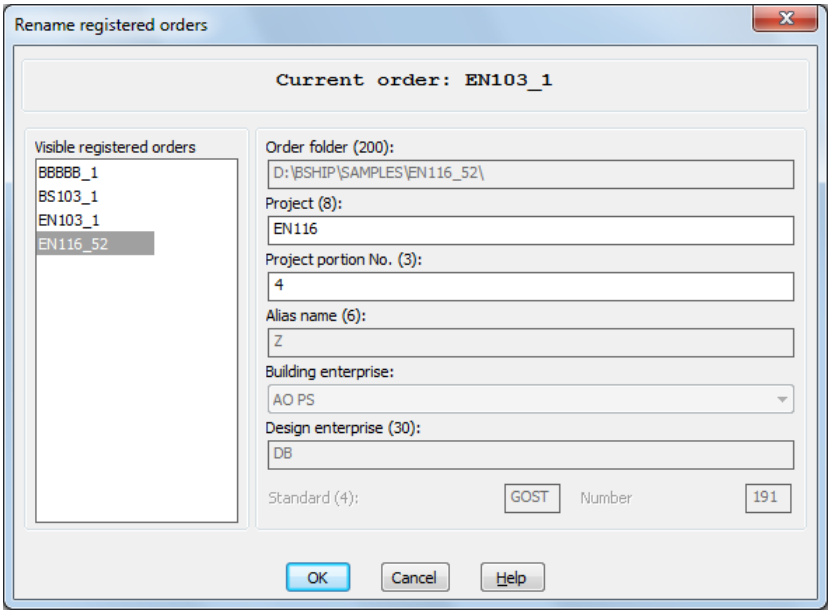
Attention! User is not able to edit parameters of the current order.

3.7. Rename order

Registered, visible and inactive order can be renamed with the item **Rename order** (see dr. 7) and button . Command opens dialog box **Rename registered orders** (dr. 17).

In the left part one must select the order to be renamed and in the left part enter new **Project** and **Project portion No.**. Press **OK**. Renaming order is accompanied by renaming the folder in which it resides because folder name is strictly connected to project number and portion number.

Attention! Current order cannot be renamed.



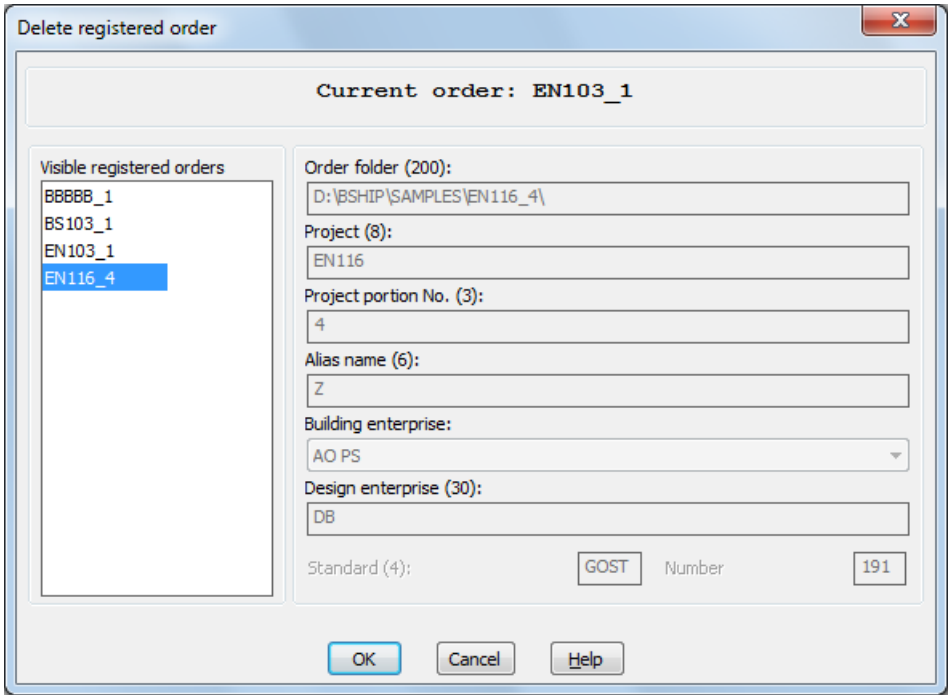
Drawing 17. Dialog box **Rename registered orders**

3.8. Delete order from registry

Registered, visible and inactive order can be removed from the orders registry with menu item **Remove order from the registry** (see dr. 7) and with button . Command opens dialog box **Delete registered order** (dr. 18).

In the left part user must select the order to be removed from the orders registry. Press **OK**. Order to be removed in fact becomes unregistered. Folder of the order is not deleted.

Attention! Current order cannot be deleted.



Drawing 18. Dialog box **Delete registered order**

3.9. Pack orders registry

As a result of editing or deleting orders unused memory areas appear in the orders registry. To pack registry user must use item **Pack orders registry** (see dr. 7) and button  . Command requests action confirmation and in case of positive answer executes packing the file prkt_ckb.dbf.

3.10. Export and import of orders

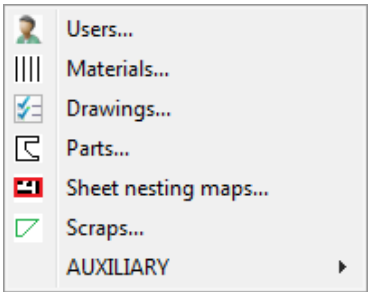
System provides opportunity to copy an order or its fragment into another order. Copying can be applied to records of the DB tables (*.dbf) and to the objects saved apart from DB (*.dwg, *.sld и др.).

Export and import operations are discussed in the chapter **EXPORT AND IMPORT**.

4. WORK WITH DB TABLES

4.1. Commands of TABLES submenu

Submenu **TABLES** (dr. 19) is designed for operations of filling-in and editing DBF tables with textual data of order.



Drawing 19. Submenu **TABLES**

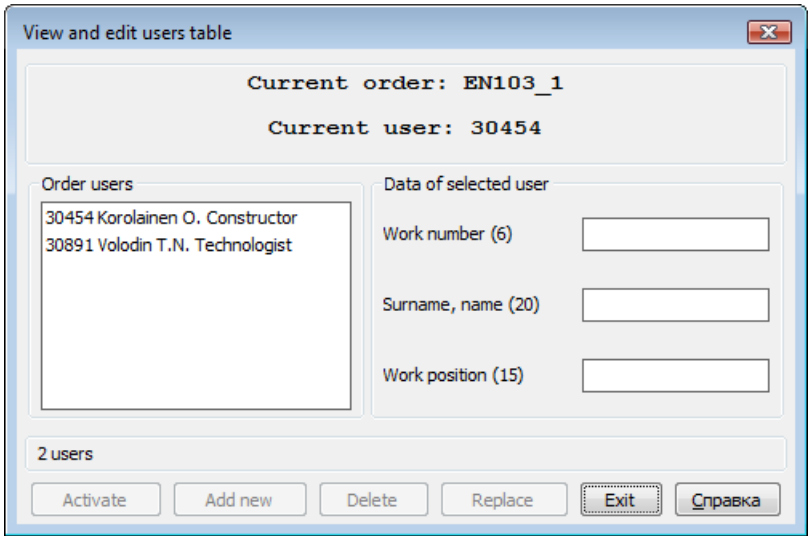
There are six items using for wor with current order tables. Table files (except scraps) reside in subfolder *DBF* inside order folder, e.g.: *D:\BSHIP\Samples\BS103_1\DBF*.

Commands of the **TABLES** submenu are accessible from the toolbar **Tables** too (see dr. 5).

4.2. Users

File of the table with registered order users is named users.dbf. Command **Users** of submenu **TABLES** (button ) opens dialog box **View and edit users table** (dr. 20).

The upper part of the window displays current order name (in the form of *project_portion*) and work number of the user that is set as active (current). List of all users registered for the order is shown in the listbox **Order users** sorted by work numbers.

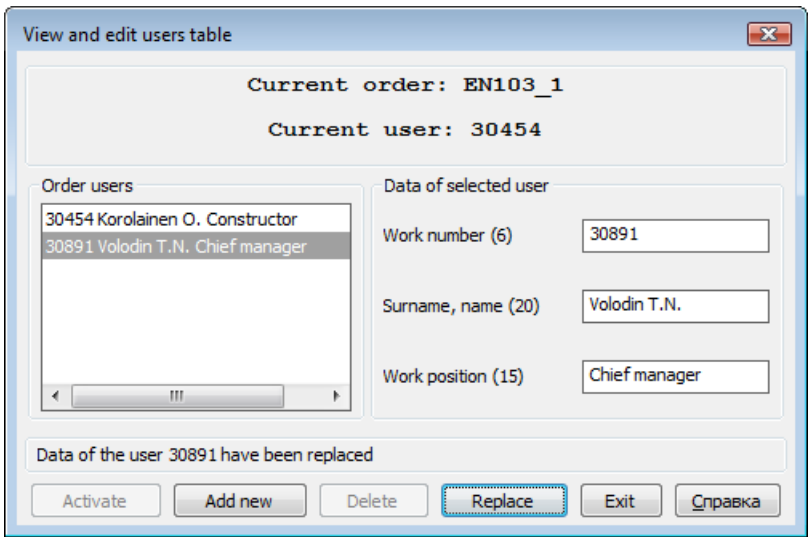


Drawing 20. Dialog box **View and edit users table**

Area **Data of selected user** is designed for display three features of the selected user (if user is selected in the list) or for new user data to be added to users table. Three fields are accessible for editing: **Work number (6)**, **Surname, name (20)**, **Work position (15)**. Digits in brackets show maximum number of symblols (and all the fields must not be empty).

At the first moment dialog on dr. 20 has no selected user and buttons **Activate**, **Add new**, **Delete** and **Replace** are disabled. Buttons **Activate** and **Delete** are being enabled after selection of an element in the list **Order users**. And buttons **Add new** and **Replace** become enabled after editing any parameter in the area **Data of selected user** (additionally for **Replace** a user to be replaced must be selected in the left part).

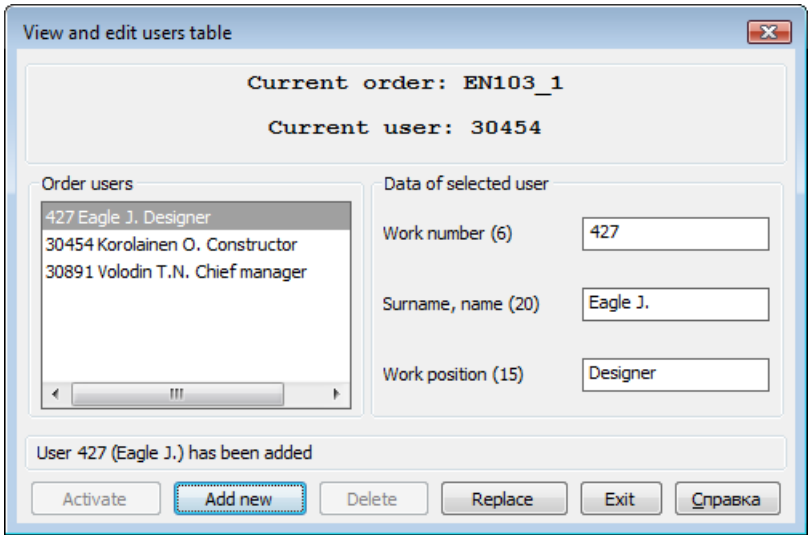
For editing user's features one must select him in the left part and change any parameter in the right part, move cursor to other feature field and after that press button **Replace**. Program will make replacement and output corresponding message into info line (dr. 21).



Drawing 21. Replacing user features

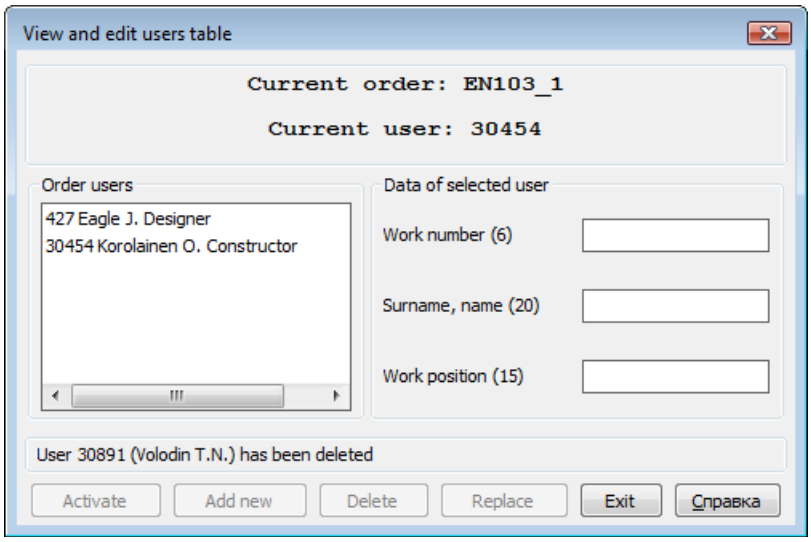
Parameter **Work number (6)** has a key importance, it must be unique inside the current order. While changing data of existing user his work number **must not coincide** with the number of any other earlier registered user (front and back spaces will be excluded). Moreover data of the active user cannot be edited.

Dr. 22 shows a sample of adding new user. If work number coincides with any other then creation of a new user will be locked with corresponding message in the info line.



Drawing 22. Adding new user

On the dr. 23 there is a sample of window state after deleting a user from the left area (with **Delete** button).

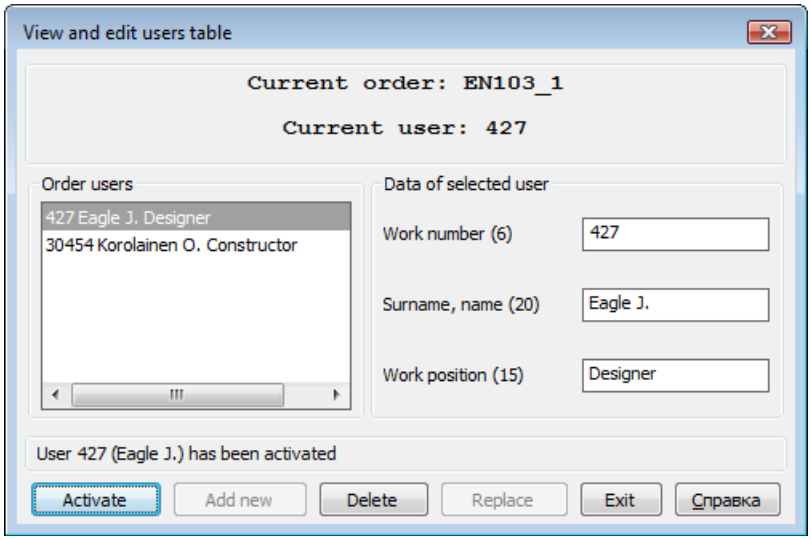


Drawing 23. Removing user

During replacement and deletion operations program outputs control requests and runs operation only after positive answer.

Program gives an opportunity to change current user with the help of button **Activate** that is enabled only after selection in the listbox **Order users**. After activation all the future actions will be marked with work number of this user and documents will display his name. On the dr. 24 there is a result of activation for other user.

If activation is needed just after the replacement operation then user must be selected in the left area once more (then button **Activate** becomes enabled).

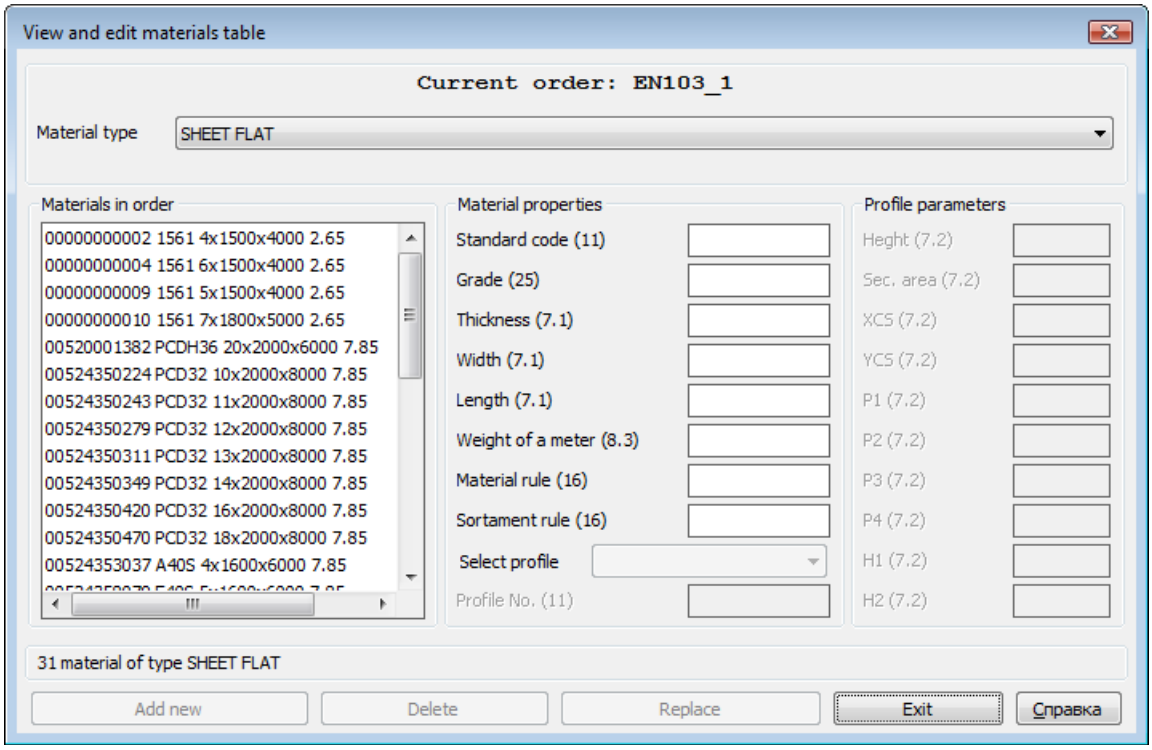


Drawing 24. Activating user

4.3. Materials

File of order materials table is named klsmater.dbf. All the materials in the system are divided into groups called *material types*: sheet flat, sheet goffered, sheet corrugated, sheet perforated, flat bar, bulb nonsymmetric, bulb symmetric, rod, T-beam, double-T, angle equal, angle unequal, channel, tube, round bar, square bar, panel, flat bar-profile, other materials.

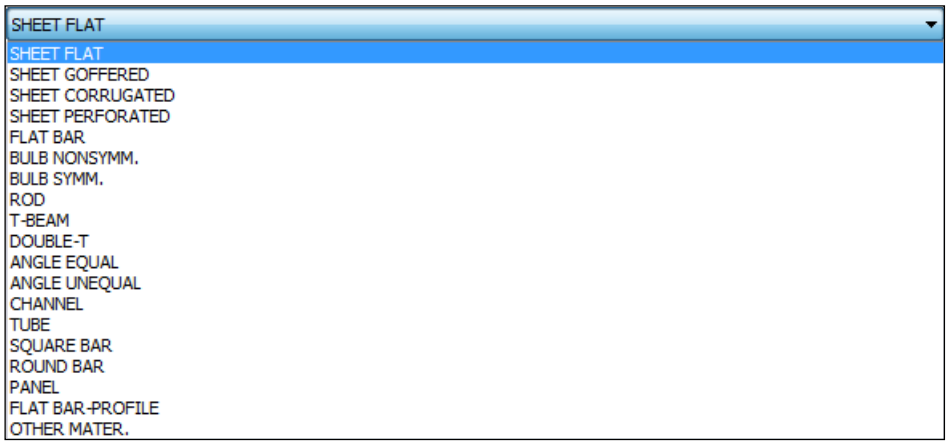
Command **Materials** of submenu **TABLES** (button ||||) calls dialog box **View and edit materials table** (dr. 25).



Drawing 25. Dialog box **View and edit materials table** (material type **SHEET FLAT**)

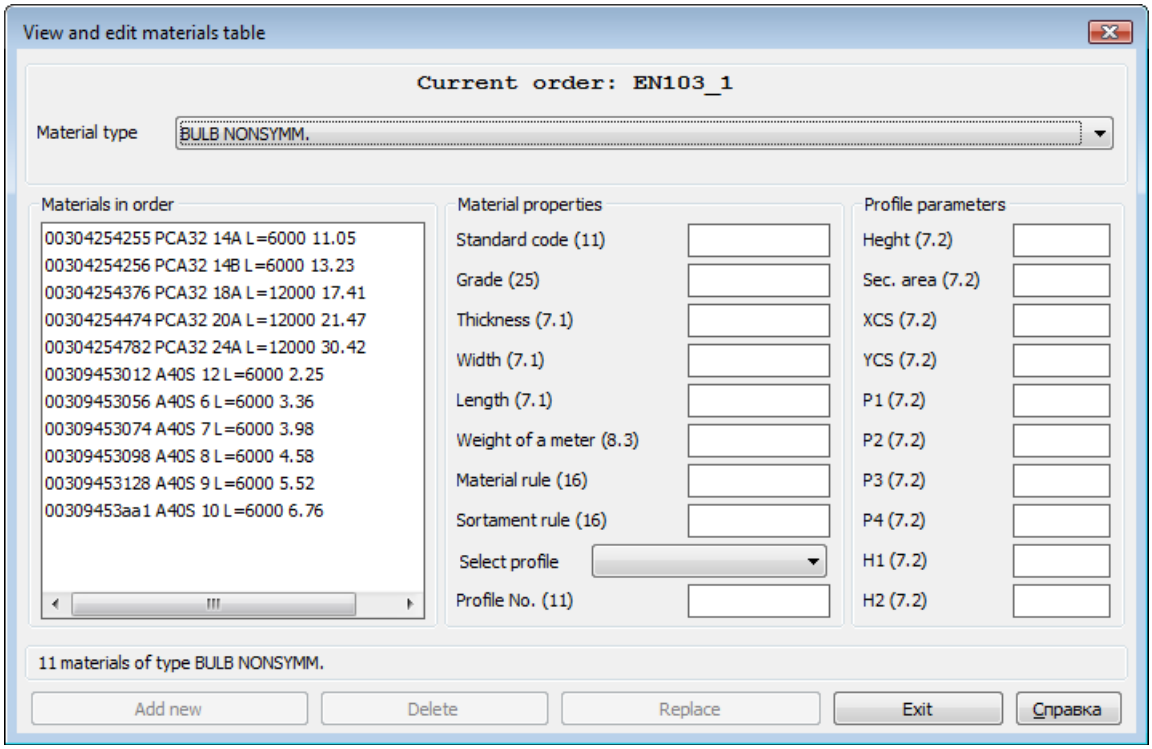
After initial load drop-down list **Material type** shows default **SHEET FLAT** and into the left listbox materials of this type are included. In the upper part of the dialog current order name is displayed (in the form of *project_portion*).

List **Order materials** contents depends on the element that is selected in the list **Material type** (dr. 26).



Drawing 26. Drop-down list **Material type**

In case of selecting other element from this list the left part of window will change and display materials list of a new type (on dr. 27 list is connected to bulb nonsymmetric).



Drawing 27. Dialog box **View and edit materials table**
(material type **BULB NONSYMM.**)

List **Materials in order** is sorted by values of standard 11-symbols code. Its elements have different forms for sheet and profile materials, e.g.:

00309453012 A40S 5 L=6000 2.25 (11-symbols code, material grade, profile number, scantling length, weight of a linear meter);

00524350311 РСД32 13x2000x8000 7.85 (11-symbols code, material grade, thickness x width x length of plate, specific weight).

If choose material in the left part then right-hand area **Material properties** will

show its parameters. Here is a full list of properties in the right part:

– **Standard code (11)**,
– **Grade (25)**,
– **Thickness (7.1)**,
– **Width (7.1)**,
– **Length (7.1)**,
– **Weight of a meter (8.3)**,
– **Material rule (16)**,
– **Sortament rule (16)**,
– **Profile No. (11)**,
– **Height (7.2)**,
– **Sec. area (7.2)**,
– **XCS (7.2)**,
– **YCS (7.2)**,
– **P1 (7.2)**,
– **P2 (7.2)**,
– **P3 (7.2)**,
– **P4 (7.2)**,
– **H1 (7.2)**,
– **H2 (7.2)**.

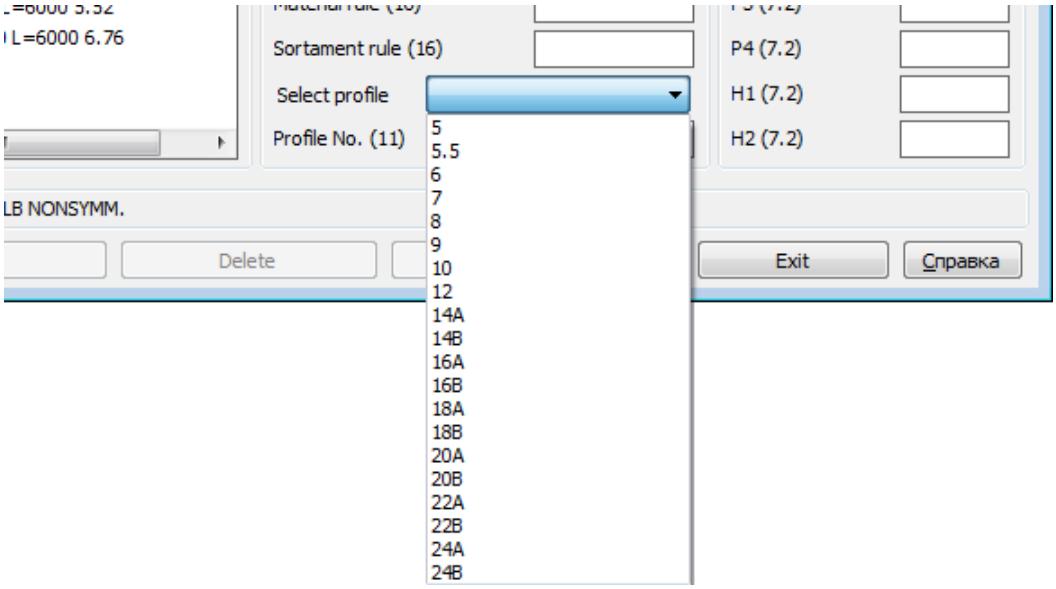
Integer number in brackets shows maximal allowed number of symbols in property while input. If number in brackets contains decimal point (e.g., **7.1**), then it means saving format in DB as a real number (7 – maximum number of symbols including point, 1 – number of digits in the fractional part after point).

Feature **Profile No. (11)** and all the features in **Profile parameters** are used only in profile materials (these are all types except **SHEET FLAT**, **SHEET GOFFERED**, **SHEET CORRUGATED**, **SHEET PERFORATED**, **FLAT BAR**, **OTHER MATERIALS**, see dr. 26). Parameters **P1–P4** are parameters of profile section geometry (rounding radii, inclination angle etc.). Their sense depends on material subtype. Parameters **H1** and **H2** define lower and upper boundaries that can be used in calculation of inversion lines for bending.

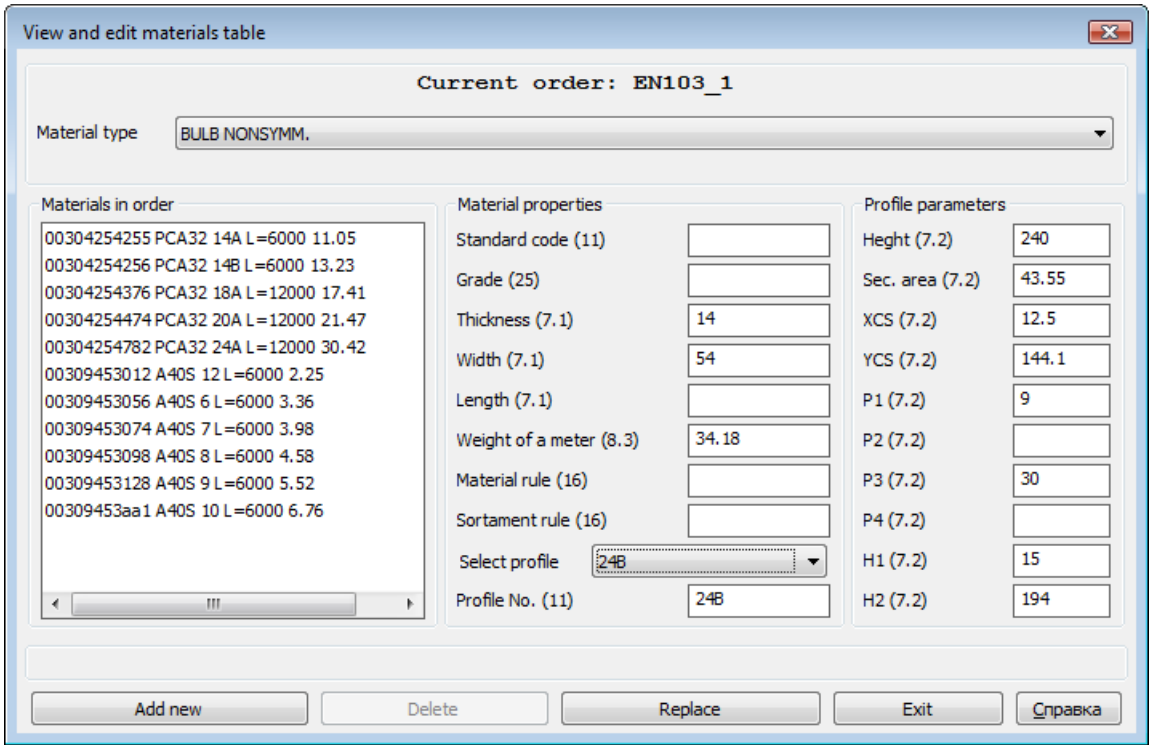
For simplification of filling-in profile data in the area **Profile parameters** there is an auxiliary drop-down list **Select profile**. For sheets this list is disabled (see dr. 25). But in case of selecting profile material type the list is being enabled (see dr. 27). At the activation moment the list is filled with standard scantlings of this type (dr. 28, on sample of nonsymmetric bulb).

If you select a scantling in the list then program will fill corresponding fields of the dialog box **View and edit materials table** with standard values (dr. 29).

Such an approach helps entering profile materials parameters. On dr. 30 there is shown contents of drop-down list **Select profile** for other implemented material types: bulb symmetric, rod, T-beam, angle equal, angle unequal, channel, round bar, flat bar-profile.



Drawing 28. Drop-down list with types of nonsymmetric bulb

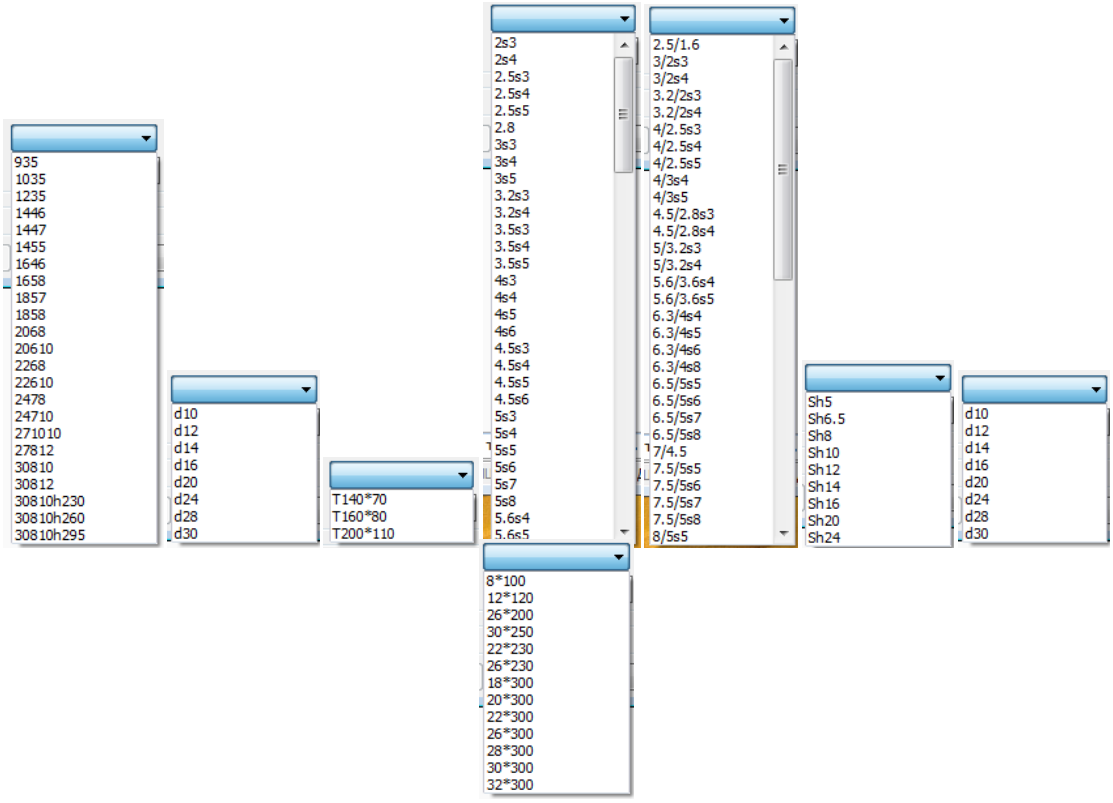


Drawing 29. Filling fields with standard values of selected profile

For operations with materials there are buttons in the lower part of window: **Add new**, **Delete**, **Replace**. Program considers work context. Buttons become enabled for selection operations in the left part and for edit operations in the right part.

E.g. for activation of button **Replace** it is necessary to enter into editing any parameter and then by mouse left-click or pressing **Tab** key to move cursor into another field (at this moment there starts verification of text in the previous field).

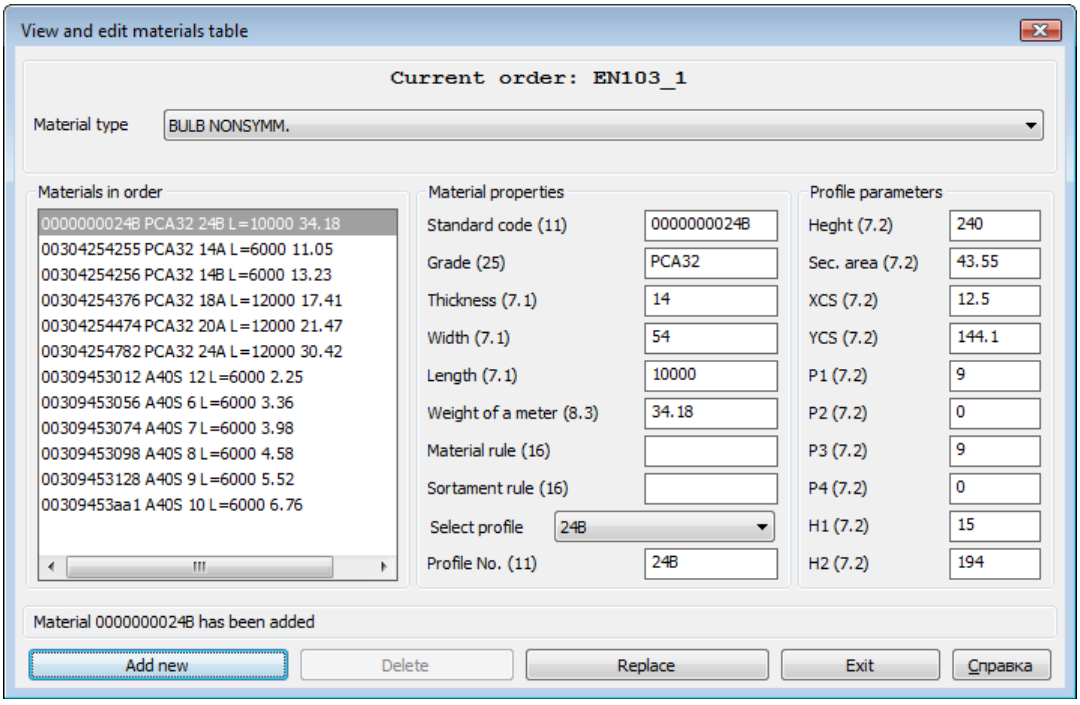
If error is found then message is being written in info line in the lower part of the window **View and edit materials table**.



Drawing 30. Standard lists of profile scantlings

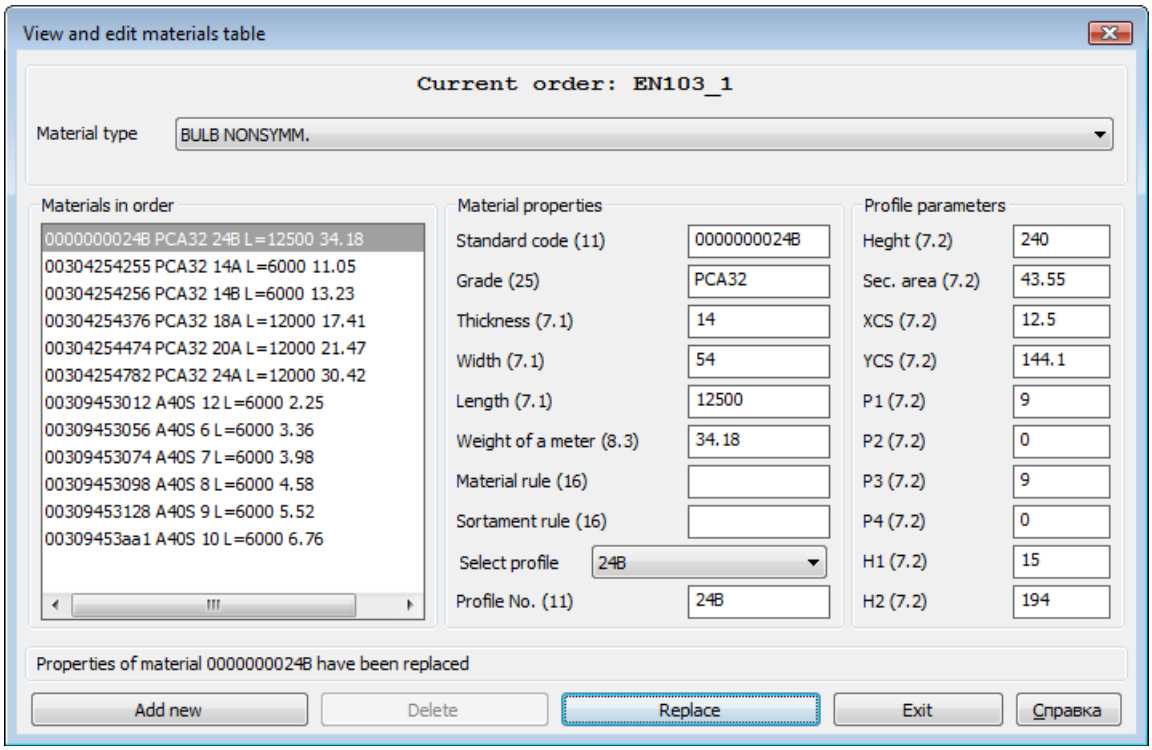
In the processes of adding and replacing materials value of **Standard code** must be unique for each material. Usualy it is 11-digit integer number but other symbols (except spaces) can be used too. Program controls uniqueness of standard codes inside current order (lowcase and uppercase symbols are counted identic). If the code is repeated then saving to DB is locked and info message is issued: **Material with standard code XXXXXXXXXXX already exists**.

On dr. 31 there is a sample of operation of adding new material.



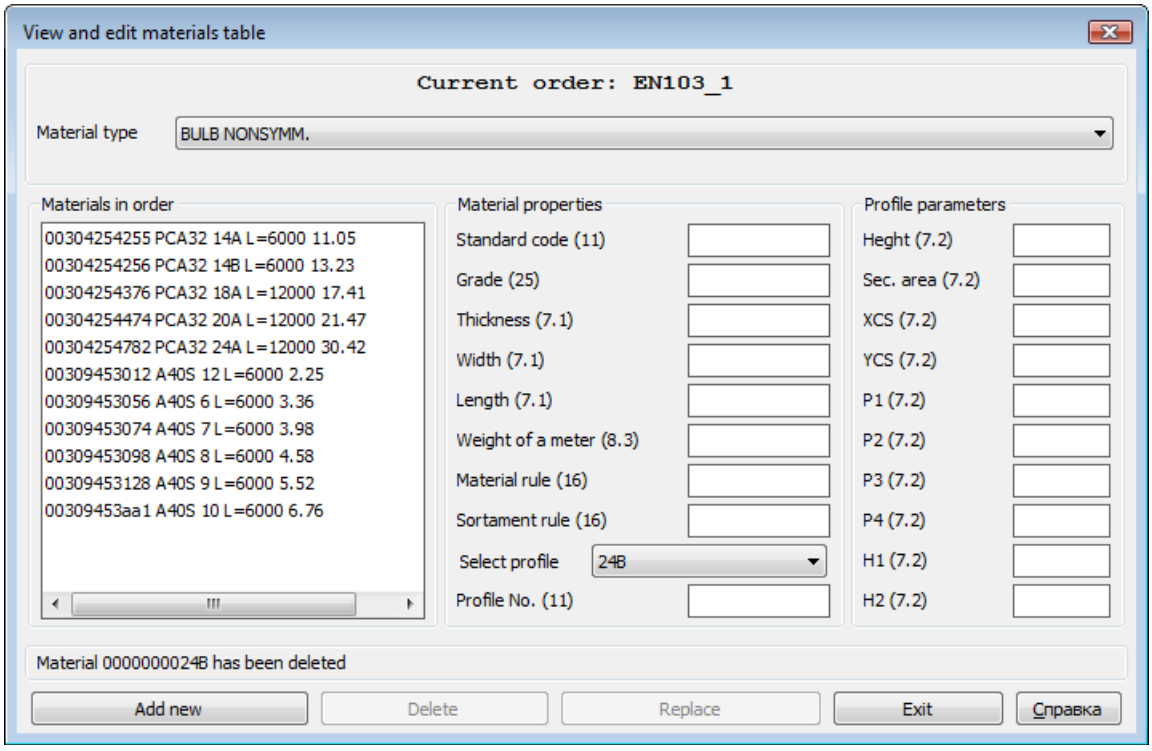
Drawing 31. Adding new material

Sample of replacing existing material properties is shown on dr. 32.



Drawing 32. Editing material properties

On dr. 33 there is shown removing operartion of the earlier added material from the table klsmater.dbf.

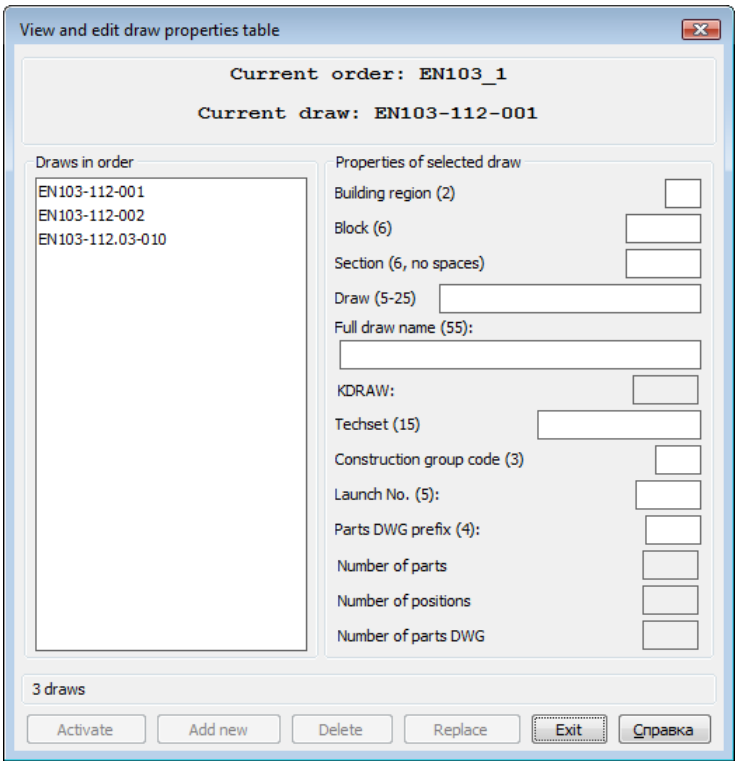


Drawing 33. Deleting material

During replacement and deletion operations program outputs control requests and runs operation only after affirmative answer.

4.4. Draws (specifications)

File of order draws (parts lists, or specifications) is draws.dbf. Command **Draws** of submenu **TABLES** (button) opens dialog box **View and edit draw properties table** (dr. 34).



Drawing 34. Dialog box **View and edit draw properties table**

In the upper part of the window there is displayed name of the current order (in the form *project_portion*) and name of the current draw. Listbox **Draws in order** contains draw numbers (names) that are already included into the table.

Area **Properties of selected draw** is designed for property values of the selected draw (if any draw is selected in the listbox) or for properites of the new draw to be added to the table. Nine fields are allowed for editing operation. The rest fields are disabled and show values of parameters that cannot be edited directly by the user. Field **KDRAW** contains automatic internal draw number in the table (1, 2, etc.) that will be attached to all the parts (details) of this draw.

Here is the full list of properties in the right part of the window:

– **Building region (2)**,
– **Block (6)**,
– **Section (6 symbols, no spaces)**,
– **Draw (5-25)**,
– **Full draw name (55)**,
– **KDRAW**,
– **Techset (15)**,
– **Construction group code (3)**,
– **Launch No. (5)**,
– **Parts DWG prefix (4)**,
– **Number of parts**,

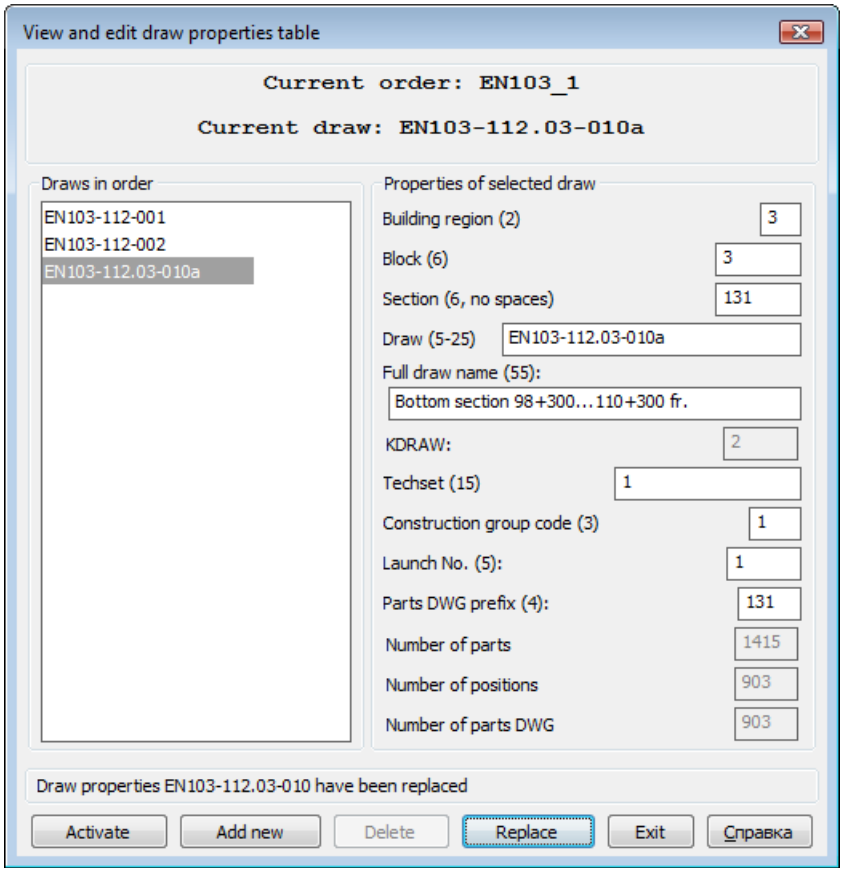
– **Number of positions**,

– **Number of parts DWG**.

Digits in brackets show maximum quantity of symbols for the property (to be counted during input).

At the first moment (on dr. 34) there is no selected draw and buttons **Activate**, **Add new**, **Delete** and **Replace** are disabled. Buttons **Activate** and **Delete** are being enabled after element selection in the listbox **Draws in order**. And buttons **Add new** and **Replace** become enabled after editing any parameter in area **Properties of selected draw** (moreover, for button **Replace** a draw must be selected in the left part of the window).

For editing draw properties user must select the draw in the left part and change any parameter in the right part, and after that click button **Replace**. Program will make replacement and write message in the info line (dr. 35).

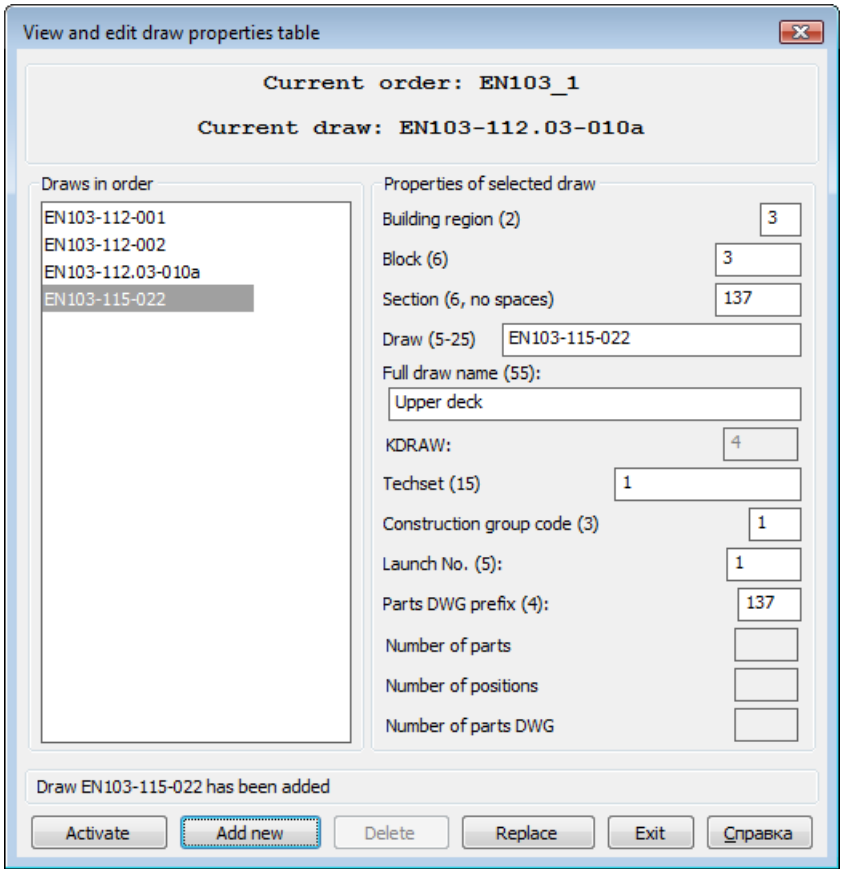


Drawing 35. Replacing draw properties

Parameter **Draw (5-25)** has a key importance, it contains draw number that is to be unique in the current order. Parameter **KDRAW** is also a key one but automatic and cannot be repeated inside order.

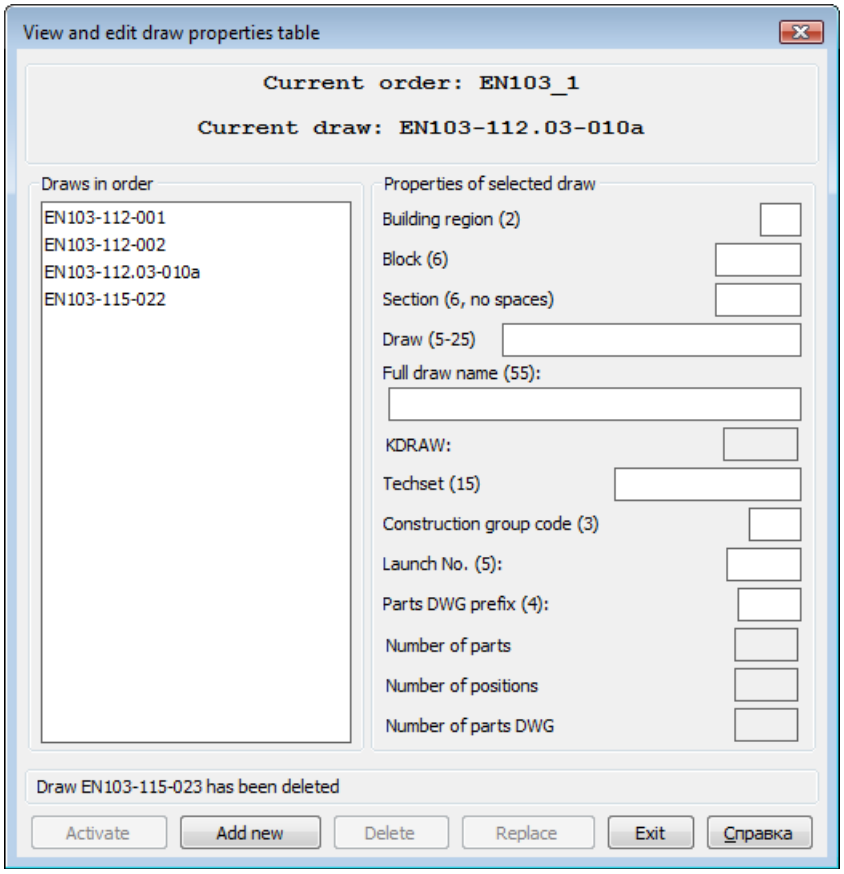
Note. While replacing existing draw or creating a new draw **property Draw must not coincide** with number (parameter **Draw**) of any other earlier added draw (spaces in front and in back are being removed). Besides, **Parts DWG prefix** also **must not repeat** parts prefix of other draws in this order (to escape their damage).

On dr. 36 there is a sample of adding a new draw.



Drawing 36. Adding new draw

On dr. 37 window state after deleting selected draw is shown (button **Delete** was used).



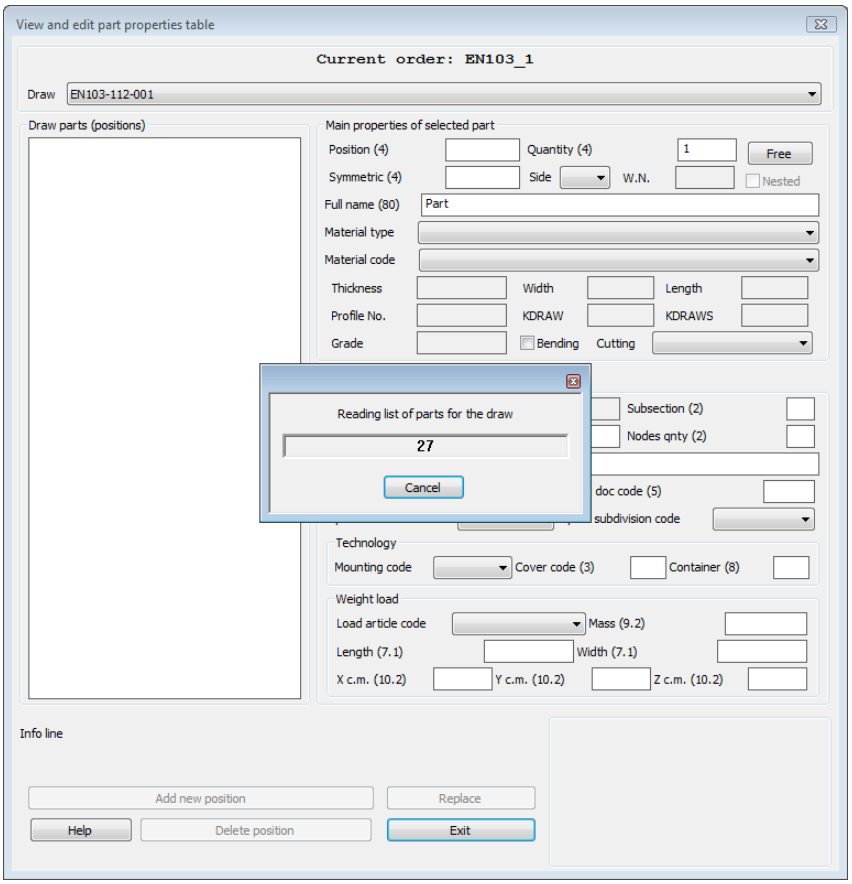
Drawing 37. Deleting draw

During replacement and deletion operations program outputs control requests and runs operation only after affirmative answer.

To activate draw one must select its number in the list **Draws in order** and press button **Activate**. As a result of operation the number in the field **Current draw** will be changed.

4.5. Parts

Parts lists are connected to draws (or specifications). File of order parts table is named specp.dbf. Command **Parts** of submenu **TABLES** (button) calls dialog box **View and edit parts properties tables** (dr. 38).

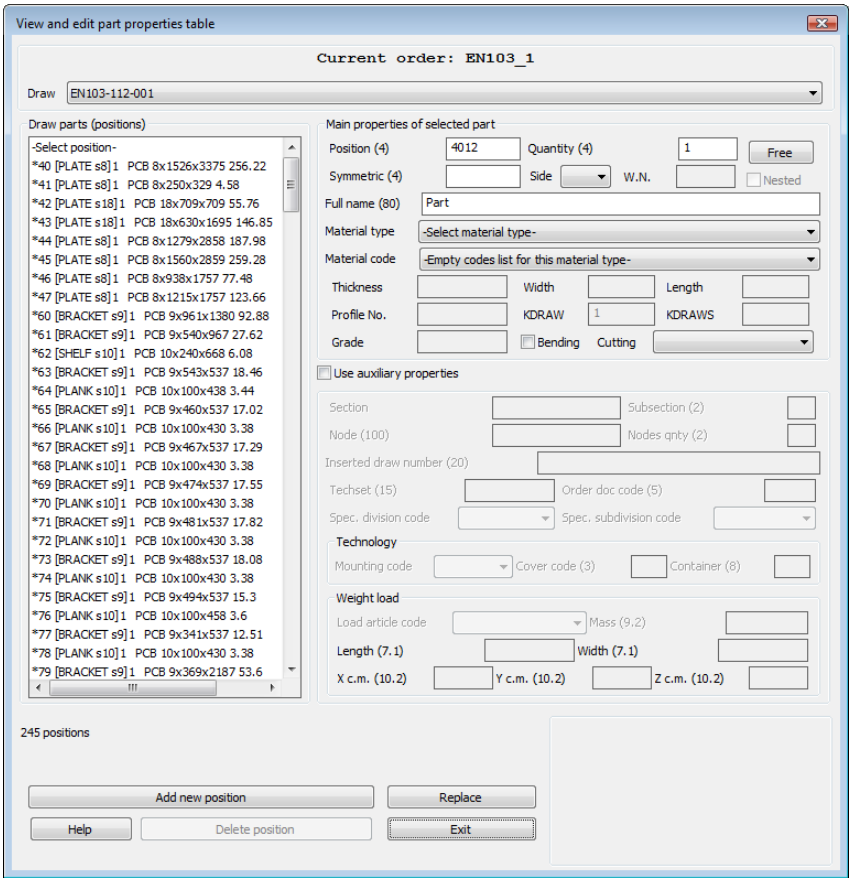


Drawing 38. Loading window **View and edit parts properties tables**

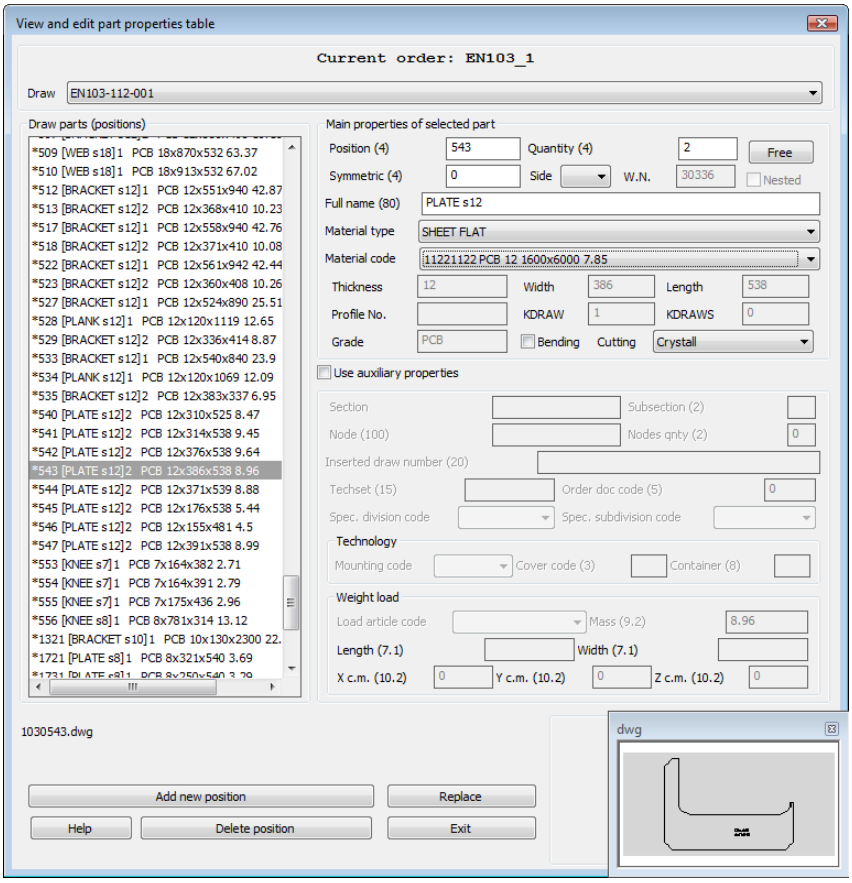
On load in the upper part of the window there are shown current order name and number of active draw. Left part of the window displays parts list of the active draw in current order (dr. 39). List is sorted by position number. If active draw is not set then user must select it from the drop-down list **Draw**.

If in the left listbox one selects part position then the right part will display its properties (text parameters). If position is not selected then fields to the right remain empty.

Values of the most important properties occupy area **Main properties of selected part** (dr. 40).



Drawing 39. Dialog box **View and edit parts properties tables** with loaded parts list



Drawing 40. Property values of the selected part

In the right lower angle there is a raster drawing if geometry of selected part is already generated in the module **Part** (as on dr. 40).

Area **Main properties of selected part** is used for property values of the selected part or of a new part to be added to the current draw. Nine fields can be edited. The rest fields are disabled and show values that cannot be directly changed by users (calculated from other properties).

Here are properties form the area **Main properties of selected part**:

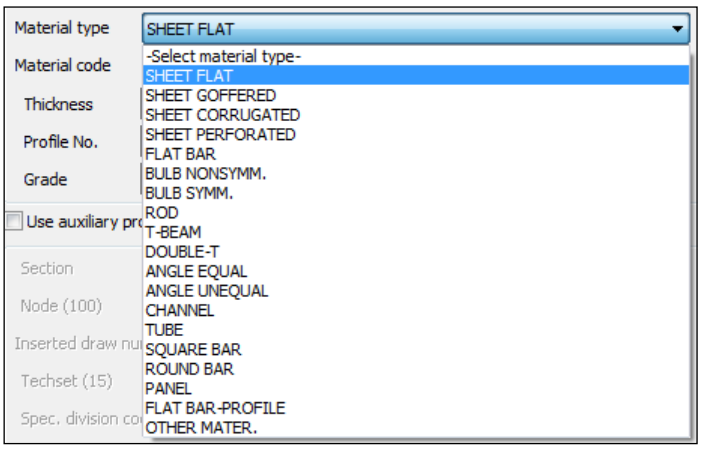
– **Position (7)**,
– **Quantity (4)**,
– **Symmetric (7)**,
– **Side**,
– **Full name (80)**,
– **Material type**,
– **Material code**,
– **Thickness**,
– **Width**,
– **Length**,
– **Profile No.**,
– **KDRAW**,
– **KDRAWS**,
– **Grade**,
– **Bending**,
– **Cutting**.

Digits in brackets show maximum number of symbols in the property while manual input.

Button **Free** calculate the first free position and after click writes into the field **Position (7)** the number that one more than the previous maximum number of existing positions in the current draw.

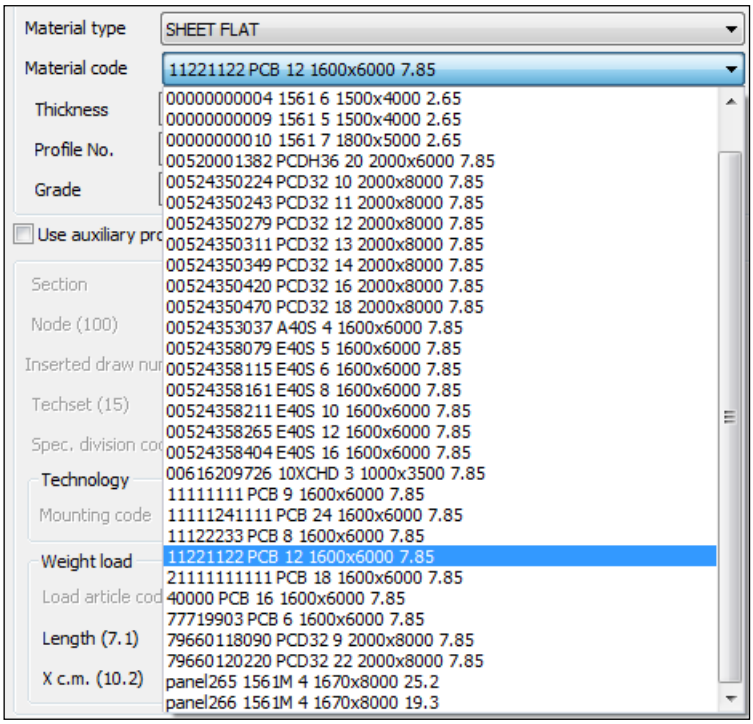
In the field **Symmetric (7)** there can be entered position number of a symmetric part on the other ship side. 0 in this fields means no symmetric part. Parameter **Side** for the main part can be left empty or take values **PS**, **SB** or **CP**.

Part material is entered in two steps. First **Material type** is selected. The drop-down list displays allowed material types (dr. 41).



Drawing 41. Selection of material type

Second step is to select **Material code** from those included into earlier selected material type. The drop-down list shows materials of this type from the order table klsmater.dbf (dr. 42).



Drawing 42. Selection of material code

Elements in this list display 11-symbol material code with (for reference only) grade, sheet thickness (or profile no.), sheet sizes, specific weight. After selection of material code program itself fills in the fields **Thickness**, **Profile No.**, **Grade**.

If checkbox **Bending** is set then it means that during the process of part geometry generation in the module **Part** there was entered bending information. But state of checkbox is allowed to be changed manually.

Parameter **Cutting** can accept the following values: **Crystall**, **Guillotine**, **Manual cutter** (cutting types).

If switch on the checkbox **Use auxiliary properties** (see dr. 40), then user will be able to work with the fields of auxiliary properties (usually nesessary only for weight load calculation).

Here is a list of auxiliary properties:

– **Section** (taken from draw properties),
– **Subsection (2)**,
– **Node (100)**,
– **Nodes qnty (2)**,
– **Inserted draw number (20)**,
– **Techset (15)**,
– **Order doc code (5)**,
– **Spec. division code**,
– **Spec. subdivision code**,
– **Mounting code**,
– **Cover code (3)**,

– **Container (8)**,
– **Load article code**,
– **Mass (9.2)**,
– **Length (7.1)**,
– **Width (7.1)**,
– **X c.m. (10.2)**,
– **Y c.m. (10.2)**,
– **Z c.m. (10.2).**

In the parts list (see dr. 40) each position occupies one line where the main properties are shown, e.g.:

***4003 [PANEL s4]2 G 1561M 4x1000x1000 100.8**.

The first asterisk (*) points that for this part the DB field FILEGRAF with name of the DWG file with geometry is filled. If this field (*) is empty then subscription symbol is printed (_). While describing and saving part geometry with the help of module **Part** the property FILEGRAF is filled automatically.

Other elements in the sample line for part position:

4003 — position number;

PANEL s4 — part name;

2 — quantity of parts with this position number (multiplicity);

G — bending sign (if no G then the part does not require bending operation);

1561M — material grade;

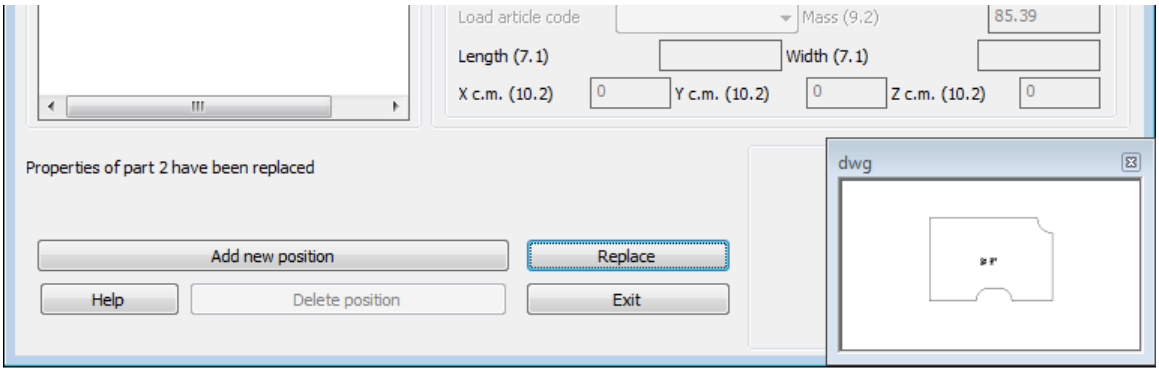
4x1000x1000 — gabarit sizes (thickness x width x length);

100.8 — part mass, kg.

If the part line is too long and not seen totally then use the horizonal scroll control (see dr. 40).

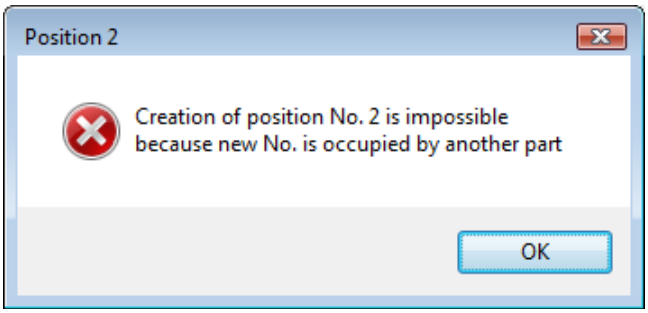
Note. For comparison: in DCL windows of AutoCAD there is no horizontal scrolling.

For editing part properties user must select part line at the left, change any parameter at the right, and then click button **Replace**. Program makes replacement and gives corresponding message into info line (dr. 43).



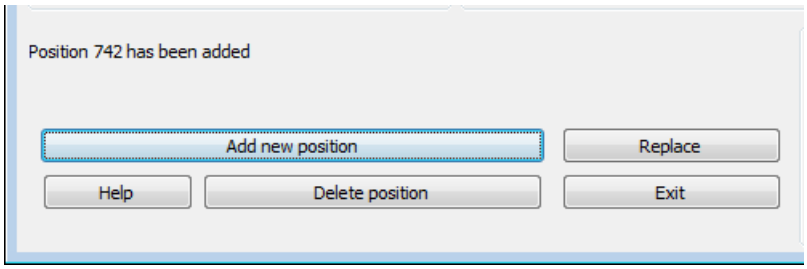
Drawing 43. Part properties replacement

Parameter **Position (7)** is of key importance, its value must be unique in the current draw. During replacing old part or creating new part the position number **must not coincide** with position number of any other earlier saved part. Otherwise an error message is generated (dr. 44).



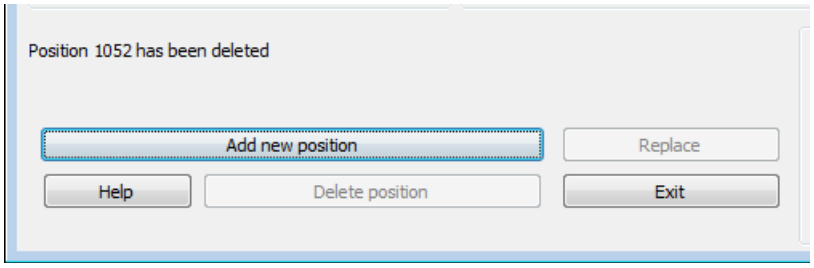
Drawing 44. Message on error in the position number

On dr. 45 there is a sample of adding new part (with button **Add new position**).



Drawing 45. Adding new part

On dr. 46 there is a sample of window state after deleting a part (with button **Delete position**).



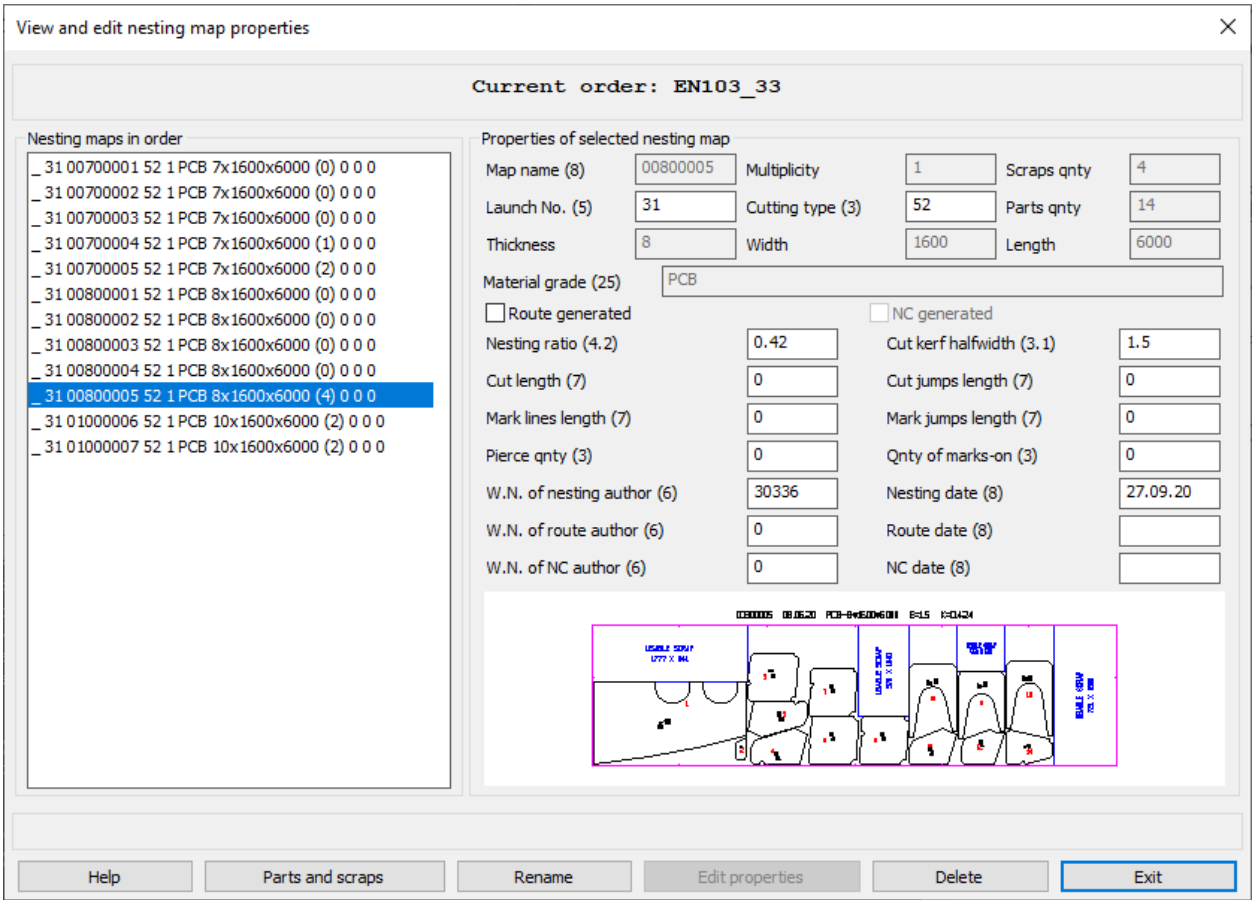
Drawing 46. Deleting part

During replacement and deletion operations program outputs control requests and runs operation only after affirmative answer.

4.6. Sheet nesting maps

File of DB table for order sheet nesting maps is named kr_list.dbf. Command **Sheet nesting maps** of submenu **TABLES** (button) calls dialog box **View and edit nesting map properties** (dr. 47).

Just after loading window its left area displays list **Nesting maps in order** for the current order. If a map line is selected in the listbox then in the area **Properties of selected nesting map** there are shown this map properties and a map slide is seen in the lower area.



Drawing 47. Dialog box **View and edit nesting map properties**

Nesting map line looks like this:

*** 1 00900001 52 1 PCB 9x1600x6000 (1) 8600 4051 3**.

It contains some map properties. The first symbol is *, if cutting route is already generated for the map, or _, if there is no route for the map. Next:

00900001 — map name;

52 — cutting type (52 — thermal, 54 — mechanical, 57 — manual);

1 — map multiplicity (always 1);

PCB — material grade;

9x1600x6000 — thickness x width x length of the sheet (before nesting);

(1) — quantity of scraps in the map;

8600 — summary cut length;

4051 — summary jump length (kerf movement with no cutting);

3 — quantity of pierces.

Lower area of the window contains buttons: **Help**, **Parts and scraps**, **Rename**, **Edit properties**, **Delete**. Just **after** selection in the maps list the buttons for renaming, deletion and list of parts/scraps become enabled. If starts editing properties at the right part then the button **Edit properties** is being enabled.

17 properties are allowed for editing and their values are being verified for invalid symbols and for leaving the limits. These properties are the following:

Launch No. (5),

Cutting type (3),

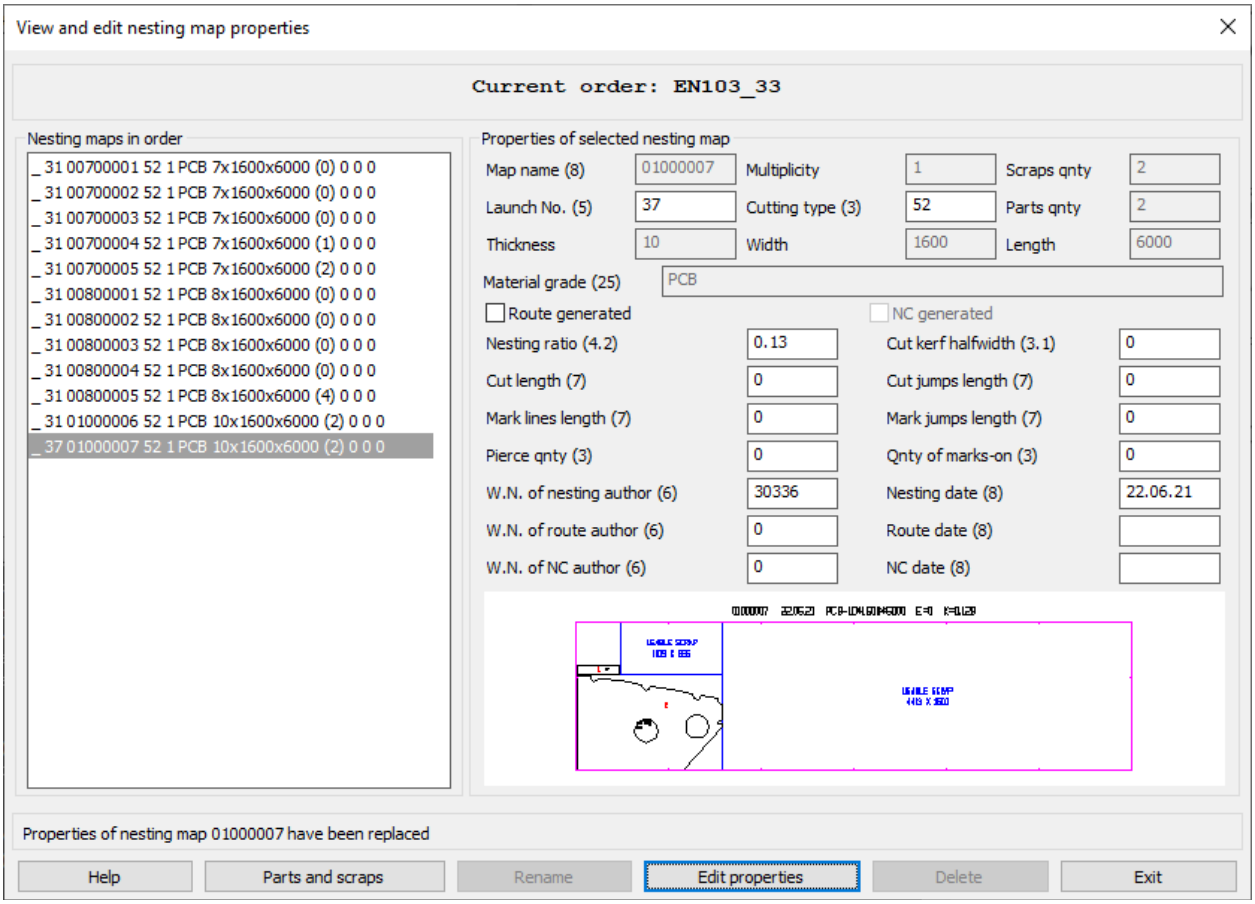
Route generated,

Nesting ratio (4.2),

Cut kerf halfwidth (3.1),
Cut length (7),
Cut jumps length (7),
Mark lines length (7),
Mark jumps length (7),
Pierce qnty (3),
Qnty of marks on (3),
W.N. of nesting author (6),
Nesting date (8),
W.N. of route author (6),
Route date (8),
W.N. of NC author (6),
NC date (8).

Digits in brackets display format for number in DB table and maximum quantity of symbols in property value.

On dr. 48 there is a sample for result of replacing property value (here it is launch number).

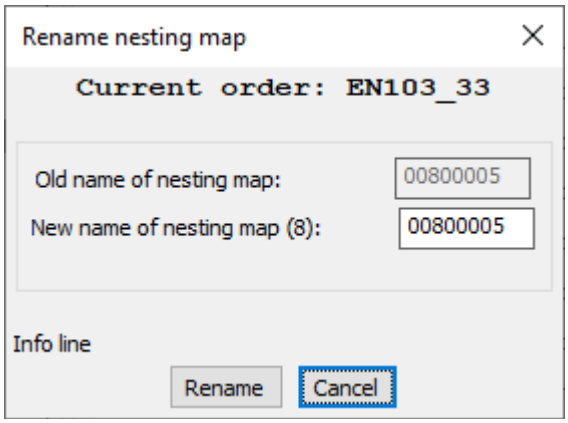


Drawing 48. Replacing nesting map properties

When using button **Rename** an additional window **Rename nesting map** opens (dr. 49).

In the field **New name of nesting map (8)** one must enter new name of the map, its length must not be more than 8 symbols. Name can consist only from digits, latin letters and may include one subscription symbol. Other symbols will cause error message.

On clicking button **Rename** there starts verification process for existing another map with an entered name.

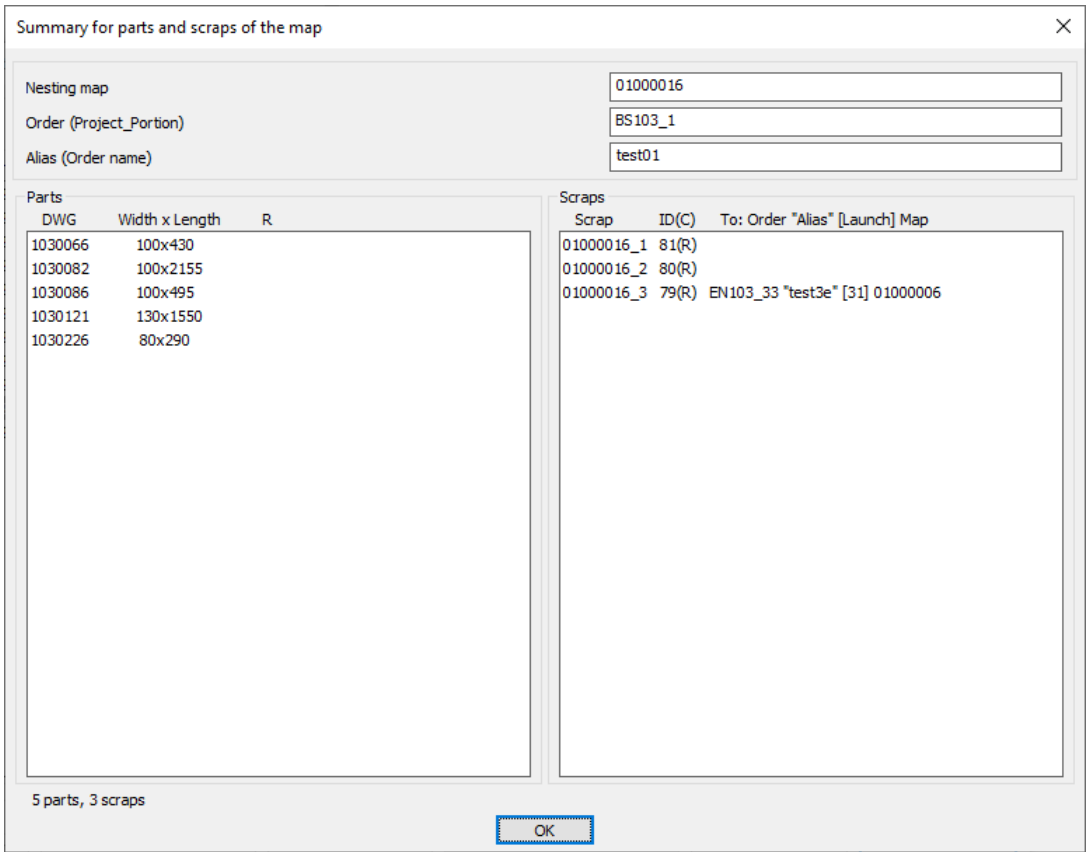


Drawing 49. Dialog box **Rename nesting map**

Button **Delete** (see dr. 47) is designed for deleting map selected in the left window area. The map is removed from DB and its DWG and SLD files are erased from the order folder *Karty*. If the deleted map had scraps inside it then these scraps are removed from otxod.dbf table.

Note. If while deleting map's scrap program finds that this scrap was nested (used for placing child nesting map on it) then a message is issued and user must delete mentioned child map himself in a separate action.

Button **Parts and scraps** serves for output of reference information concerning parts and scarps that (according to DB data) are located inside the selected nesting map. Window **Summary for parts and scraps of the map** shows these data (dr. 50).



Drawing 50. Dialog box **Summary for parts and scraps of the map**

In the upper zone of the window there is a nesting map name as well as order name and its alias.

The left zone (area **Parts**) is used for list of parts included into this map. Each line contains three parameters:

DWG – part's DWG file name,

Width x Length – gabarits of the bounding box (rectangle) circumscribed about part,

R – token of edited part (can be **R** or empty). If it has value **R** then part has changed and user must resave this nesting map to DB.

In the right zone (area **Scraps**) there is a list of usable scraps created inside the map. Each line contains the following parameters:

Scrap – scrap's name;

ID(C) – ID (scrap's address in the table otxod.dbf) and token of scrap form (**R** – rectangle, **C** – curvilinear);

Order – name of the order where the scrap was sent for nesting to;

"Alias" – alias name of the order in which scrap was nested;

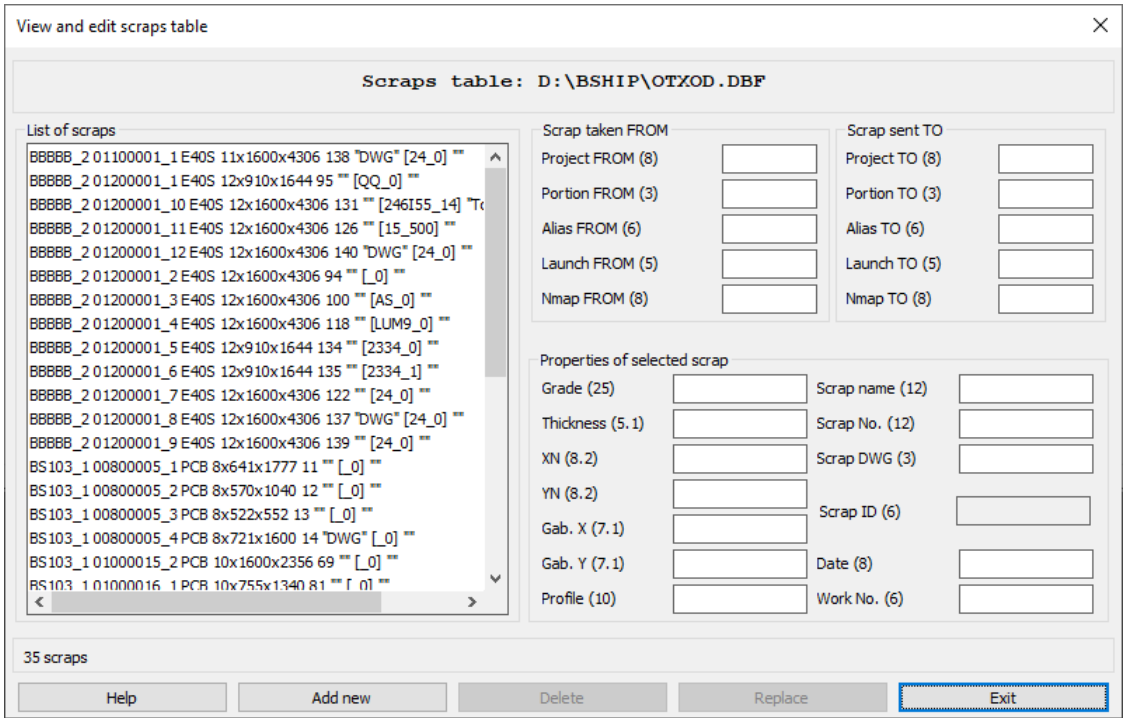
[Launch] – number of the launch in which scrap was nested;

Map – name of the nesting map located on the scrap.

4.7. Scraps

File for storing usable scraps is named otxod.dbf. This table is not connected to the current order. Its location is defined by value of the Windows registry parameter *scrapsbrics*. Default location is *D:\BSHIP*.

Command **Scraps** of submenu **TABLES** (button) calls dialog box **View and edit scraps table** (dr. 51).



Drawing 51. Dialog box **View and edit scraps table**

After initial load left listbox **List of scraps** is being filled with list of scraps from the current file otxod.dbf, its path is shown in the upper area.

One scrap occupies one line that looks like so:

BS103_1 00700003_2 PCB 7x628x668 1991 "DWG" [12802_5] "z2"

Sample line includes the following properties:

BS103_1 — order (project and portion) from which the scrap is received;

00700003_2 — name (number) of the scrap, contains parent map name (00700003) and internal scrap number (2) in the map;

PCB — material grade;

7x628x668 — thickness of the sheet or gabarit sizes (width x length) of rectangular scrap (or gabarits of bounding box if scrap is curvilinear);

1995 — ID (address) of scrap in DB table otxod.dbf;

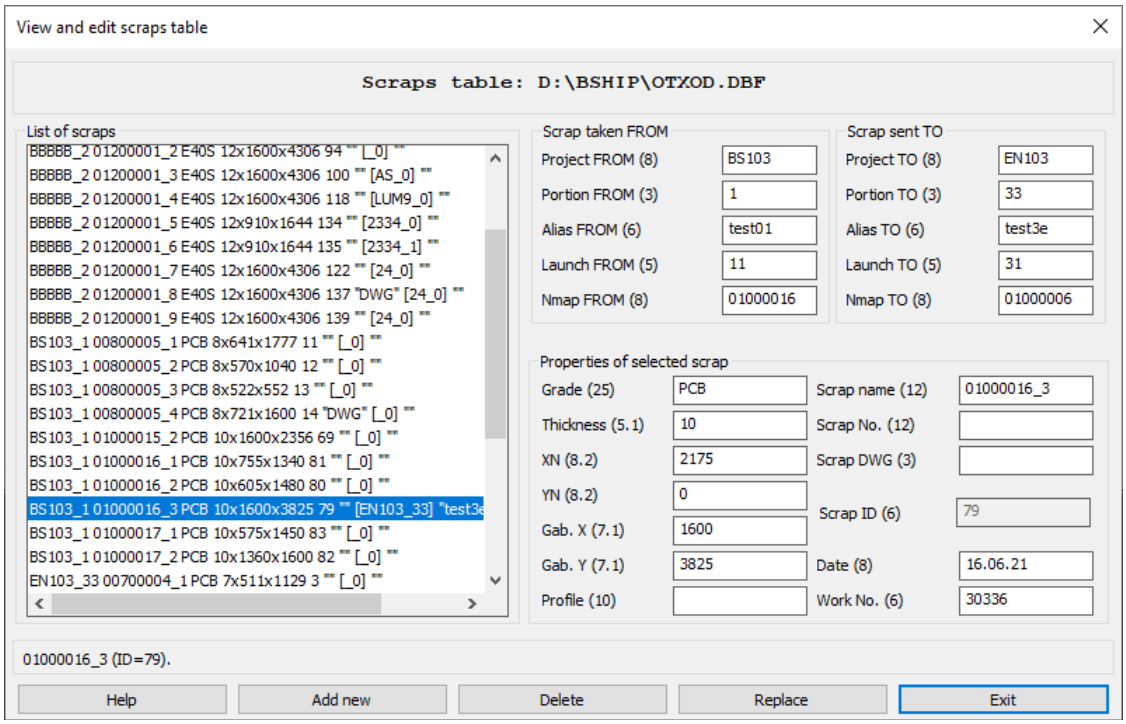
"DWG" — token of curvilineat scrap (there exists DWG file with geometry of scrap outer contour and auxiliary entities); for rectangular scrap this parameter has value “”;

[12802_5] — order (project and portion), to which the scrap was sent (a nesting map with sheet parts was created on it); if scrap is yet free then paramater is shown as [_0];

"z2" — alias name of the order in which this scrap was taken for nesting (a nesting map with parts was placed in it); if scrap is free then parameter is shown as "".

Note. In the current version curvilinear scraps are not supported.

If in **List of scraps** user selects line of a scrap then right part of the window will display data of the scrap (dr. 52).



Drawing 52. Data of selected scrap

The displayed scrap data are divided into three areas: **Scrap taken FROM**, **Scrap sent TO**, **Properties of selected scrap**.

Group **Scrap taken FROM** has five parameters: **Project FROM (8)**, **Portion FROM (3)**, **Order FROM (6)**, **Launch FROM (5)**, **Nmap FROM (8)**. Digits in brackets define maximum number of symbols in the parameter.

Five similar parameters are included into group **Scrap sent TO**: **Project TO (8)**,

Portion TO (3), **Order TO (6)**, **Launch TO (5)**, **Nmap TO (8)**.

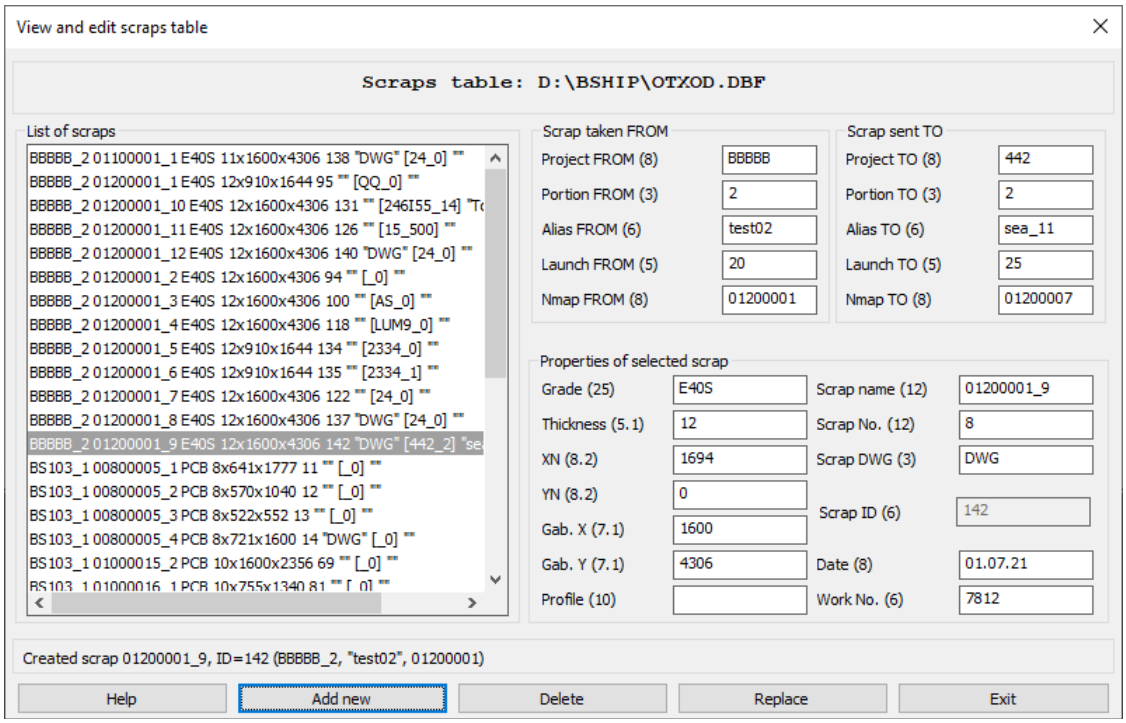
The greatest area is **Properties of selected scrap** with the following parameters: **Grade (25)**, **Thickness (5.1)**, **XN (8.2)**, **YN (8.2)**, **Gab. X (7.1)**, **Gab. Y (7.1)**, **Profile (10)**, **Scrap name (12)**, **Scrap No. (12)**, **Scrap DWG (3)**, **Scrap ID (6)**, **Date (8)**, **Work No. (6)**.

Buttons **Delete** and **Replace** are designed for deleting selected scrap and for replacing property values that are allowed for editing.

If user deletes a scrap that was already nested (had child nesting map in it) then there will be generated a message suggesting to delete the child map from kr_list.dbf table by a separate operation.

Note. Operation of replacement is created only for properties of areas **Scrap taken FROM** and **Scrap sent TO**. Editing other properties is possible in this dialog (manually) but it is better to change scraps while changing their parent nesting maps. In exceptional cases editing any properties can be done with DBF editor (p. 4.9).

Button **Add new** serves for creation in otxod.dbf a record corresponding to a new scrap or to a lost scrap. This command can be applied for correcting some unexpected situations. User must fill data in all the three areas of the dialog box **View and edit scraps table**. On the dr. 53 there is shown a result of creating a new scrap.

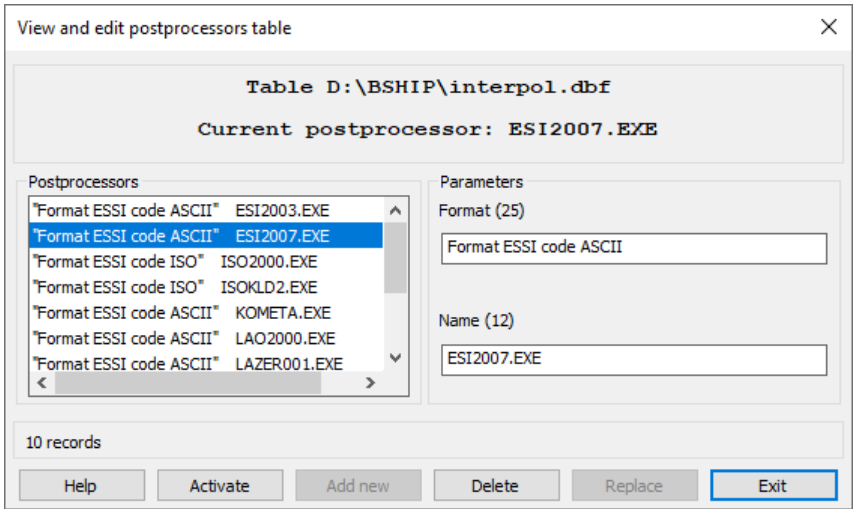


Drawing 53. Adding new scrap

4.8. Postprocessors

Postprocessor allows to create CNC programs for cutting parts (if necessary, for marking and labeling too) in the proper format understandable by the device used by the customer. Therefore before generating CNC it is necessary to set current (active) postprocessor from postprocessors list included in B-Ship system for shipment.

Command **Postprocessors** of submenu **TABLES** (button PP) calls dialog box **View and edit postprocessors table** (dr. 54).



Drawing 54. Dialog box **View and edit postprocessors table**

The upper part of the window displays file name of the postprocessors table and name of the postprocessor that is set active (current). List of all postprocessors included in B-Ship is shown in the listbox **Postprocessors**. Area **Parameters** is designed for display features of the selected postprocessor (if it is selected in the left list) or for new user data to be added to postprocessors table. Two fields are accessible for editing: **Format (25)**, **Name (12)**. Digits in brackets show maximum number of symblols (and both fields must not be empty).

At the first moment dialog on dr. 54 has no selected postprocessor and buttons **Activate**, **Add new**, **Delete** and **Replace** are disabled. Buttons **Activate** and **Delete** are being enabled after selection of an element in the list **Postprocessors**. And buttons **Add new** and **Replace** become enabled after editing any parameter in the area **Parameters** (additionally for **Replace** a postprocessor to be replaced must be selected in the left part).

For editing postprocessor's features one must select it in the left part and change any parameter in the right part, move cursor to other feature field and after that press button **Replace**.

4.9. Auxiliary tables

Submenu **AUXILIARY** is used for viewing auxiliary tables. Intended for system administrator.

4.10. DBF editor

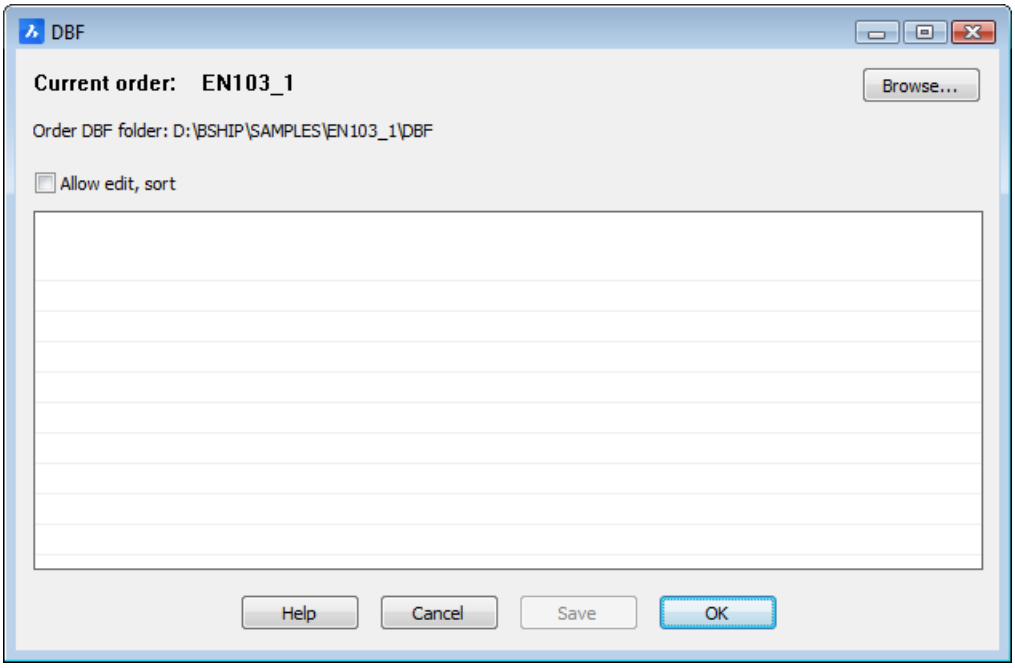
Menu command **BDATA > DBF editor** (button ) calls universal editor of DBF tables. Designed for operation of special changes in existing records of DBF files. To be applied by system administrator and experienced users.

Command opens dialog box **DBF** (dr. 55).

Central rectangular area is targeted to display data of the selected DBF file. Window also includes these controls:

Current order – name of the active order;

Browse – button to select DBF file (by default *DBF* folder of the current order is suggested);



Drawing 55. Window **DBF**

Order DBF folder – path to *DBF* folder of the current order;

Allow edit, sort – checkbox for table editing mode;

Help – button to read help topic for work with this window;

Cancel – exit button with suggestion for saving changes into DBF table (if there were changes in table data);

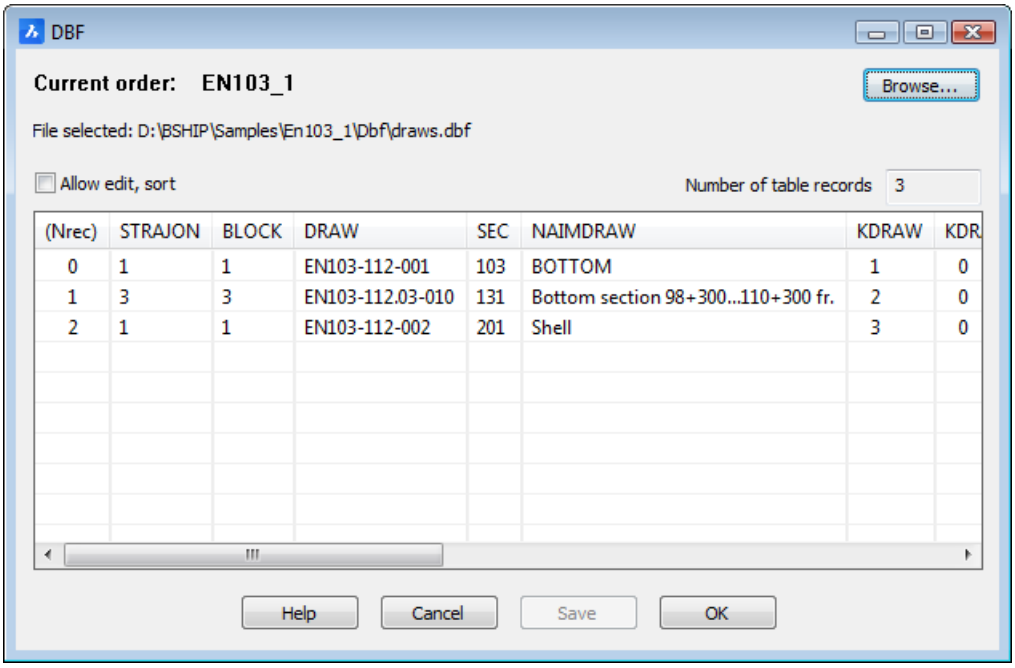
Save – button to save changes without leaving window (enabled only after unsaved changes);

OK – exit button with automatic saving changes.

Work starts with pressing **Browse** button. An auxiliary window for selecting file with extension .dbf, while current order *DBF* folder is suggested. But user can select file from any other folder, not only from the suggested one. Contents of the file selected is being read into the tabular area of window **DBF** (dr. 56, on sample draws.dbf with order draws (specifications)).

If selected DBF table is empty (has no data) then error message is issued (dr. 57).

After reading file the window line **Order DBF folder** is replaced with **File selected** line displaying the full name of the file. Additional line **Number of table records** (see dr. 56) shows quantity of read records (records marked as deleted are not included in it).



Drawing 56. Window **DBF** with initial size

Drawing 57. Reading error message

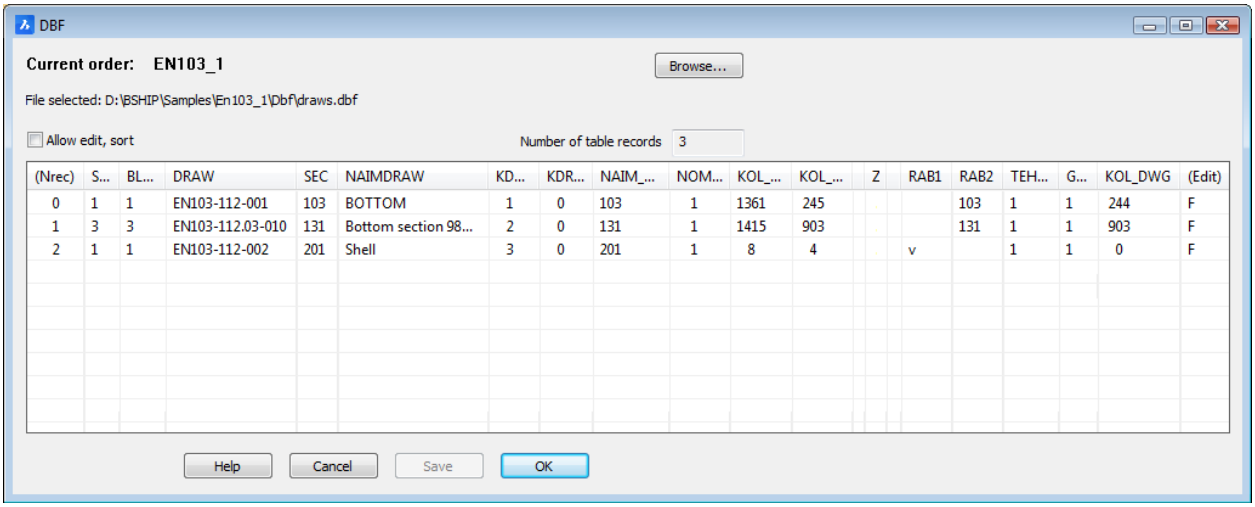
The tabular area contains all the DBF table records and all the field columns (column names are displayed as they were entered into DBF table structure). While reading columns width automatically grows to display the longest field values without cutting.

Attention! For correct editing user must exactly know table structure and format of the fields.

If the data volume is very big then the program creates horizontal and vertical scrolling lines. The window itself has changeable size and can be maximized to the whole screen. Column borders in the tabular area are unfixed and therefore can be moved or hidden with the help of left mouse button (dr. 58).

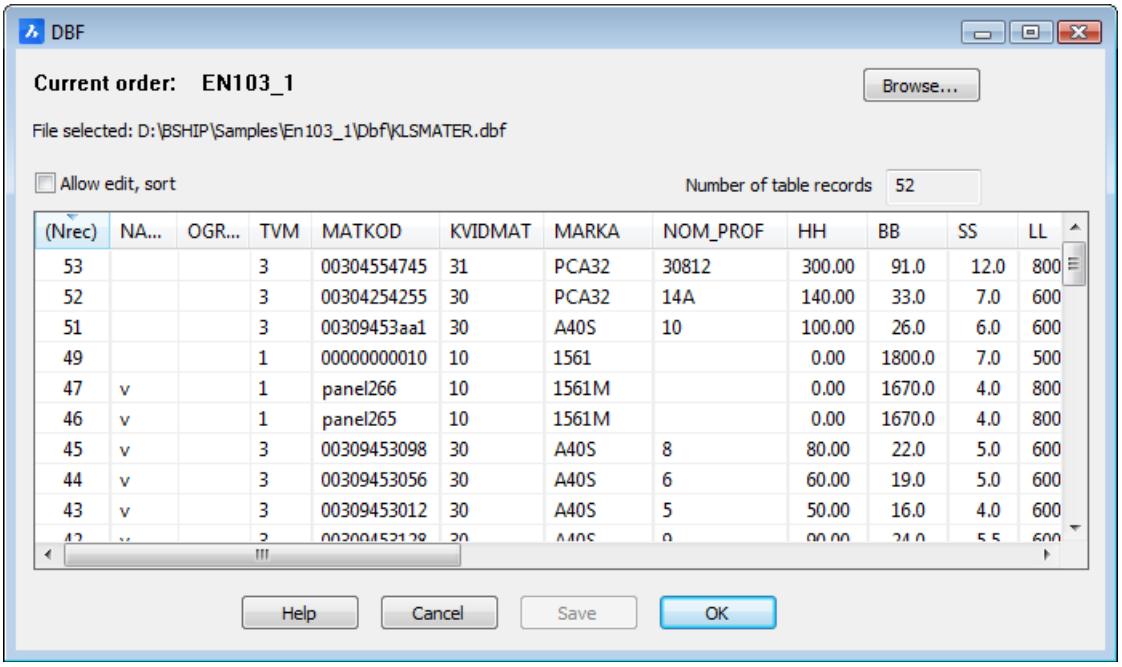
Table outputs two additional columns that are not present in the DBF file structure. Start column **(Nrec)** displays internal record numbers. If some numbers are missing then corresponding DBF records are marked as deleted. End column **(Edit)** shows flag of editing record: **F** (false) – record is unedited, **T** (true) – some record fields were changed.

At the starting moment table has only view status. For adding editing option user must set checkbox **Allow edit, sort**.



Drawing 58. Window **DBF** with changed size

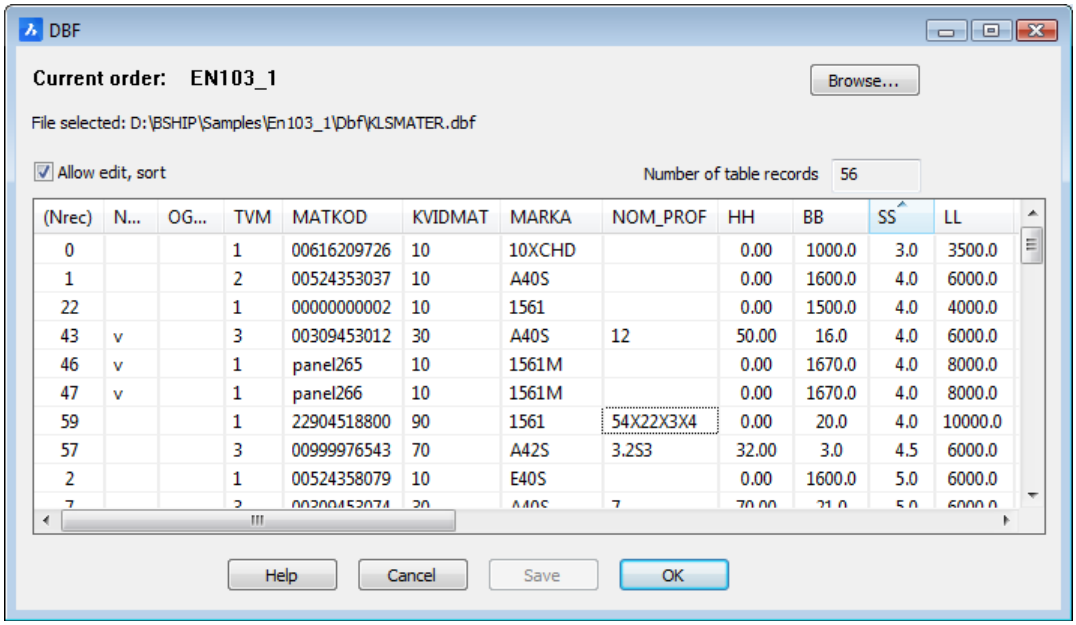
Column headers can be used for sorting records by data of the column that was left-clicked. There are two sort modes: ascending (by default) and descending. Next click on the header changes sort mode to an opposite one. Actual mode is marked by a small triangle in the header (dr. 59, descending sort by record number).



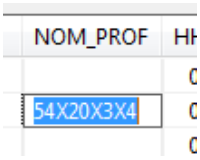
Drawing 59. Descending sort by values of the first column

By cleared checkbox **Allow edit, sort** sorting only by **(Nrec)** column is possible. If the checkbox is set then user can sort by values of any columns. On dr. 60 there is a sample sort by column **SS** (thickness).

For editing table cell one must twice click inside it. Cell borders and its value will be selected (dr. 61).

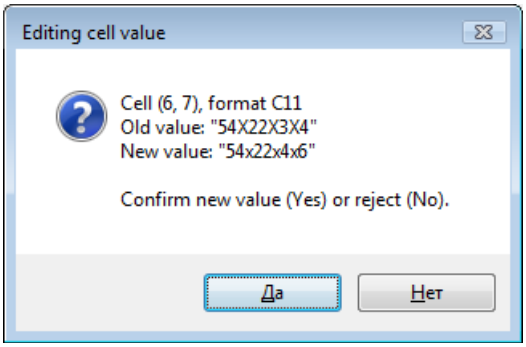


Drawing 60. Ascending sort by values of column **SS**



Drawing 61. Cell selection while editing

Then user should enter new value and press Enter. Program verifies field format and value limits. If error is found then a message is generated (exceeding length, invalid format, bad value etc.). If there is no formal errors then program asks for change confirmation (dr. 62):



Drawing 62. Request for value change confirmation

In case of **Yes** cell value will be updated. To save new values buttons **Save** or **OK** should be used.

During single start of editor one can make changes in several tables.

Note. Editor of DBF tables does not permit to delete a record or to add a new record.

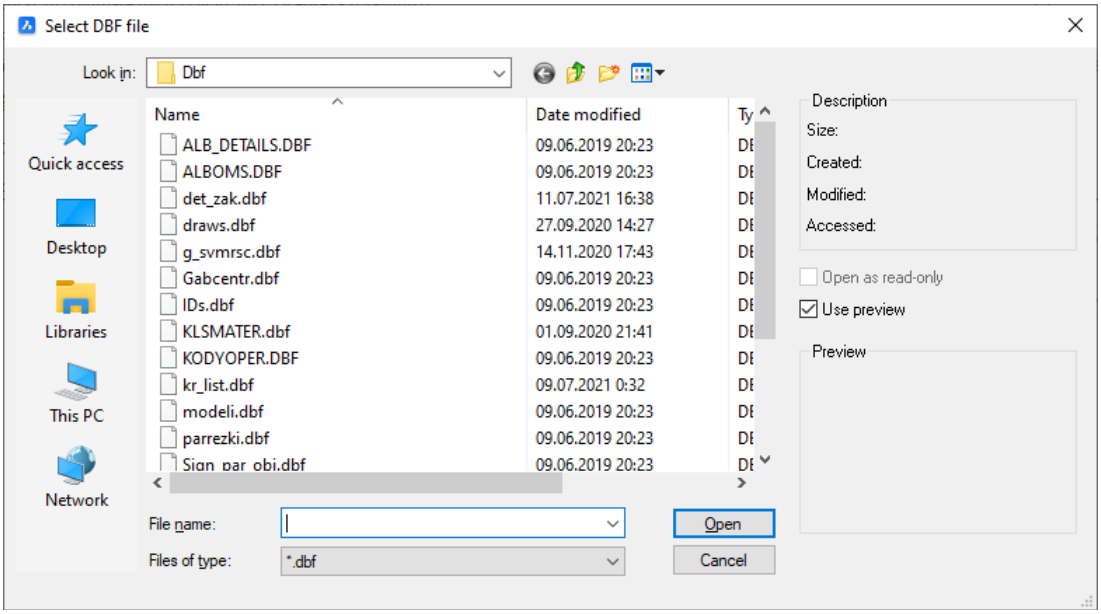
4.11. Pack DBF tables

During editing DBF table old record is usually marked as deleted and new state of data is saved into a new record, in free zone. From step to step it causes growth of

table size though number of really used records can stay the same or increase insignifically.

Menu command **BDATA > Examine and pack DBF table** allows to analyze unused space inside DBF file and if necessary to run packing the table, with nullifyng volume of unused space. This reduces DBF file size. Command is created for system administrator or experienced users.

Command **Examine and pack DBF table** opens window for selecting DBF file (dr. 63).



Drawing 63. Window **Select DBF file**

The default folder is *Dbf* folder of the current order. One can select any file in this folder or with drop-down list **Look in** move to any other folder. The required file with extension .dbf must be selected and button **Open** should be clicked.

The program examines selected file. If the table is unfilled (0 records with data) then command finishes its work and generates to the command line messages about zero number of records, for example:

Selected file D:\BSHIP\Samples\Bs103_1\Dbf\modeli.dbf.

Total number of records 0.

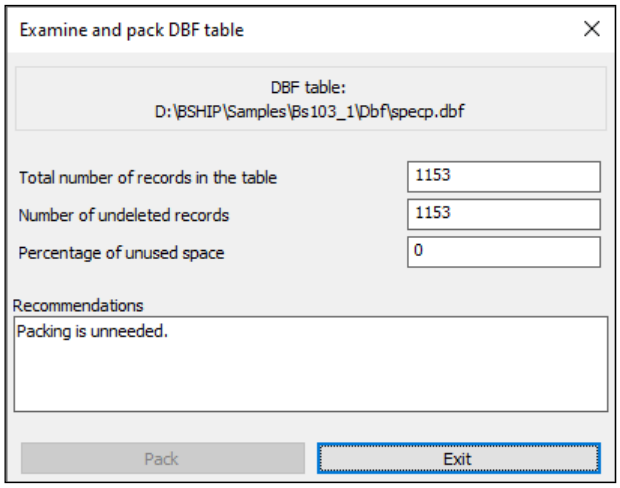
Number of undeleted records 0.

End of analysis.

If there non-empty data records in the table then dialog box **Examine and pack DBF table** is opened (dr. 64).

There are three information fields in the window: **Total number of records in the table**, **Number of undeleted records**, **Percentage of inused space**. If the first number is greater than the second then file contains records marked as deleted and some file space is not used (lost for work).

The listbox **Recommendations** displays text with recommendation for future actions. If the total number of table records is equal to the number of undeleted records then there is no lost space inside the DBF file and the only recommendation is *Packing is unneeded*. At the same time the button **Pack** is disabled (see dr. 64).



Drawing 64. Dialog box **Examine and pack DBF table**

If the program finds deleted (lost) records in DBF file then **Percentage of unused space** is calculated. When percentage exceeds 20% then the following recommendation is advised:

Percentage of unused space

is rather big and exceeds 20.

It is recommended to run packing table.

Pressing button **Pack** (it will be enabled) will launch the packing process, and a message will appear in the command line: *Packed file …* The file size will reduce to minimal, with preserving all the earlier saved data.

When percentage of unused space does not exceed 20% then recommendation looks like so:

Percentage of unused space

does not exceed 20.

Packing table is not necessary but possible.

User can decide himself: to leave the window (by pressing button **Exit**) or to run packing (by clicking button **Pack**).

5. EXPORT AND IMPORT

Menu commands **Export** and **Import** (buttons and in toolbar **Projects and orders**) are targeted for copying DB fragments from order into itermediate folders or from one order to another. It is recommended to begin with export to an intermediate folder and then (after analyzing export protocol) to run import from intermediate folder to other order.

Direct export from order to order (without intermediate folder) is possible too but is more risky.

The following rule is applied for **overwriting** data during export and import: existing **DB records** with the same key names (part positions, draw names, model names, nesting map names, etc.) **are not overwritten**. It is connected first of all with dividing export into steps (data can become corrupted). But **files** *.dwg, *.sld, NC **are overwritten**.

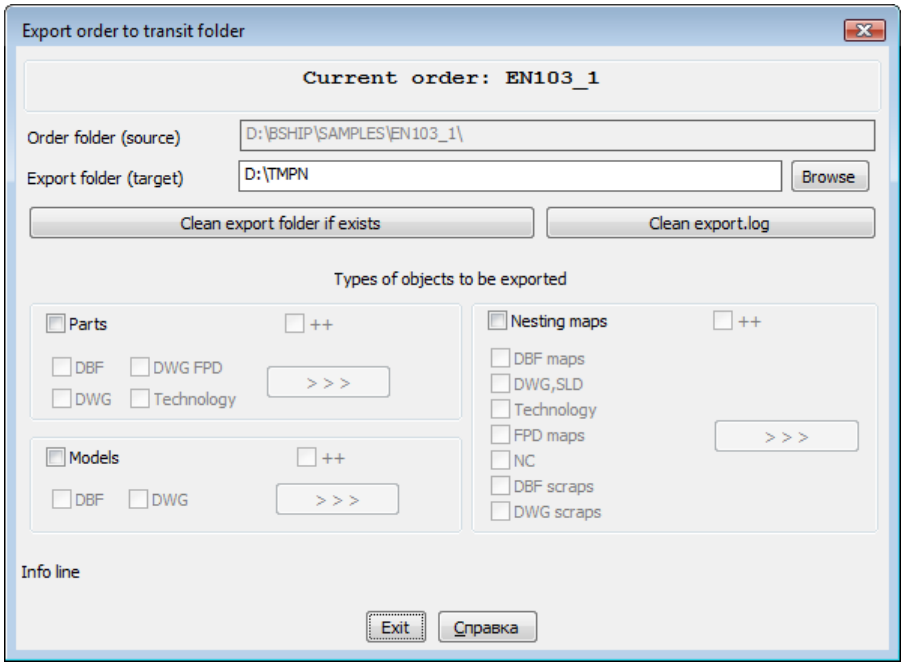
5.1. Export settings

Export works only from the **current** order. It is necessary to select folder for re-

ceiving data and to select object types to be exported.

In the workflow there is an important file export.log that is located in the folder *Tmp* of the **B-Ship** system. It contains all the necessary information on export volume, selected objects and found problems.

Command **Export** opens dialog box **Export order to transit folder** (dr. 65).



Drawing 65. Dialog box **Export order to transit folder**

In the upper part of the window there is shown current order name and order folder with files. Data of this order will be exported.

Path to folder to run export must be entered in the field **Export folder (target)**. The folder can be selected with button **Browse**. If the entered folder does not exist yet then it will be created by the program. Inside this folder there will be added all the subfolders necessary to run export in the formulated volume of export. They are the following subfolders: *Dbf*, *Dwg*, *Tnk*, *Model*, *Karty*, *Pl*, *Tnk_krt*, *Scraps*.

If export folder (target) is not empty then it can be used with those subfolders and files that exist already there. To clear folder from previous contents one should press button **Clean export folder if exists**.

Note. Existing order folder can be selected as export folder (target). This export type is more risky. It is better to export to transit folder and to analyze results from the export log.

File export.log is located in the folder *Tmp* of **B-Ship** and is being filled during export operations. By default it is written in append mode (previous contents retains). To clean protocol use button **Clean export.log**.

Central part of the window **Export order to transit folder** is occupied by area **Types of objects to be exported**. Area is divided into three subareas: **Parts**, **Models**, **Nesting maps**. They correspond to three independent export modes, by type of exported objects. At the very beginning content of all the subareas is disabled. To get access to checkboxes and buttons of the required area user must set its checkbox (**Parts**, **Models** or **Nesting maps**).

All the three export types are discussed separately.

5.2. Export protocol. DB audit

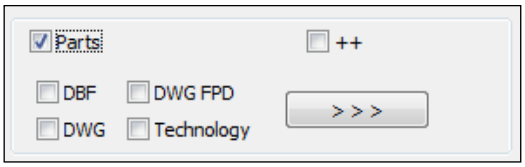
Protocol (log) file has standard name export.log and is formed in the subfolder *Tmp* inside system installation folder (e.g., *D:\BSHIP\Tmp\export.log*). Information from the protocol file can be useful while copying orders and to some extent to audit DB for its completeness, orphan links.

Therefore in some situations it is useful to save this file in a special archive for possibility of future analysis.

5.3. Export of parts

This export mode is applied when it is necessary to transfer data concerning selected parts, without nesting maps. At the same time all the necessary information on draws (specifications), geometry (DWG files) of parts, FPDs (TNCs), manufacture technology.

To activate area **Parts** set the checkbox with the same name (dr. 66).



Drawing 66. Area **Parts** (after activation)

Export volume is ruled by checkboxes: **DBF**, **DWG**, **DWG FPD**, **Technology**. Special checkbox **++** enables/disables all the four checkboxes at a time. Checkboxes serve to select types of objects to be exported (not less than one must be set):

- **DBF** — copying records of marked part positions (table specp.dbf), corresponding draws (table draws.dbf), materials in use (table klsmater.dbf);

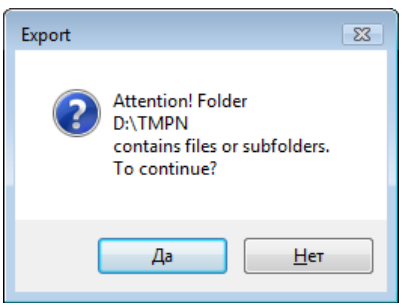
- **DWG** — copying DWG files with geometry of selected part positions;

- **DWG FPD** — copying DWG files with TNCs (FPDs) of marked positions;

- **Technology** — copying records of technological operations attached for part positions manufacturing (table teh_oper.dbf), technological parameters for parts (table sign_par_obj.dbf), as well as records of draws and parts (even if option **DBF** is disabled).

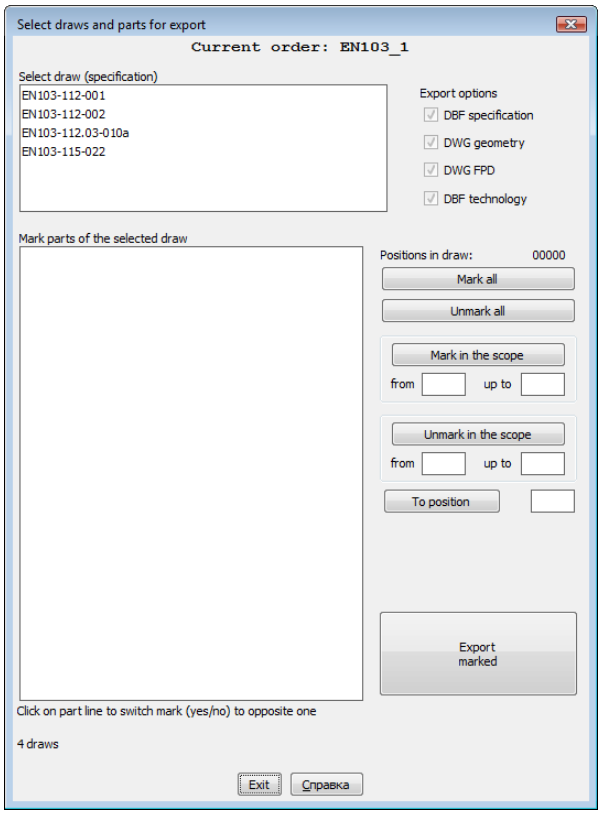
Button 

goes to next step of exporting parts. But at start there is verified a folder entered as transition folder for copying. If folder exists and is non-empty then additional message is generated (dr. 67):



Drawing 67. Warning on files and subfolders presence

If reply is **No** (Нет) then user will be returned to dialog box **Export order to transit folder** and he will be able to press button **Clean export folder if exists**. If reply is **Yes** (Да) then export process will go on and next windows opens (dr. 68).



Drawing 68. Dialog box **Select draws and parts for export**

At initial state info line shows message about quantity of draws in the current order. User must select draws one by one, mark positions of exported parts and with button **Export marked** launch copying these parts.

Dialog box contents is as follows:

- list **Select draw (specification)**, to select draw;

- list **Mark parts of the selected draw**, to mark exported positions;

- area **Export options**, reflects types of exported objects selected in the window **Export order to transit folder** (see dr. 66);

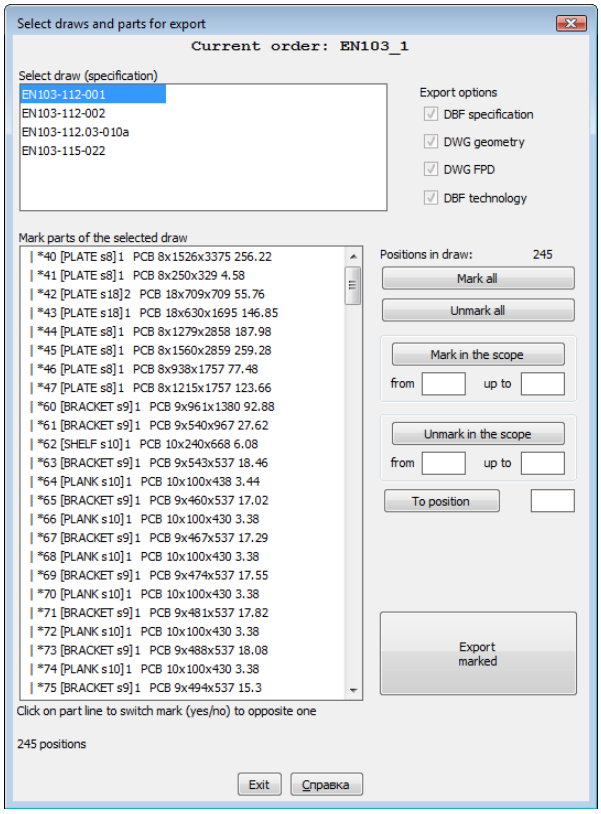
- buttons and edited fields (at the right), to control positions marking and moving inside specification.

The first step is selection of one draw in the upper listbox. After that the lower listbox will display all the parts of the draw (dr. 69).

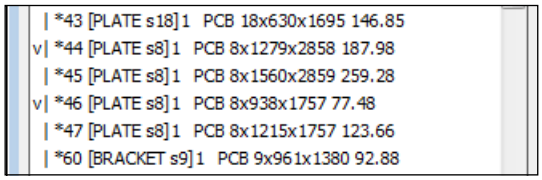
Required positions must be marked in the listbox. Marking is done by mouse left-click on the corresponding line. If the line was unmarked before then after click a ‘v’ sign will appear at the beginning of the line (dr. 70).

Click on the previously marked line removes mark sign from position. At each moment info line at the bottom shows how many positions are already marked for export.

For total marking button **Mark all** is targeted (marks all the lines of the draw). Button **Unmark all** clears marks for all the draw positions.



Drawing 69. Parts list for selected draw



Drawing 70. Marks for positions 44 and 46

Button **Mark in the scope** sets marks to all the positions with numbers within given scope. Scope boundaries are entered in the fields **from** and **up to** placed close down from the button (e.g. 1 and 55). It is not obligatory that the bounding numbers must be existing position numbers. Therefore if in the window on dr. 69 user sets 1 and 55 then in fact only positions 40–47 will be marked (that's because there are no positions with numbers less than 40, and greater than 47 but less than 55 in the draw). Similarly button **Unmark in the scope** allows to clear marks inside the scope (scope boundaries are filled in the fields **from** and **up to** close down from the button).

To move along big specification the button **To position** is useful (position number is entered in the box to the right from the button). After clicking the button list of positions is programmatically scrolled up/down to the required position becomes visible. If the number does not exist in specification the program searches the nearest number greater than required (or the last possible number if the number is too big).

After marking all required positions user must press button **Export marked**. If he reveals that some positions were missed then on the next step only they can be exported to the same export folder.

Program runs export of data for marked parts, adding corresponding data (on draw, materials, etc.) in the following sequence:

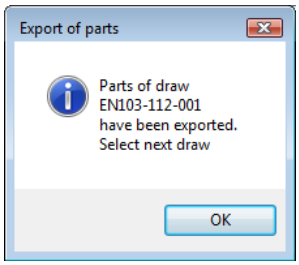
- if option **DBF** is set (see dr. 66) then there are copied data to the target DB tables draws.dbf (draw), klsmater.dbf (materials), specp.dbf (parts);

- if option **Technology** is set then there are copied data to the target DB tables teh_oper.dbf (technological operations), sign_par_obj.dbf (technological parameters);

- if option **DWG** is set then part DWG files are copied;

- if option **DWG FPD** is set then TNC (FPD) DWG files are copied.

Only data found in the corresponding place (in DB table or in files subfolder) are being exported. On finish final message appears (dr. 71). It invites to the next step of export.



Drawing 71. Final parts export message

Export of the draw has a specific feature because many tables refer KDRAW of the draw. Draw existence is verified for the name of DRAW parameter (e.g. EN103-112-001). The draw could be written to the target DB earlier (on previous steps of export or if export is run not to the transit folder but into the folder of existing order). If the draw does not exist in the target DB then it is saved there.

Attention! As a rule, KDRAW of the draw in the source DB and in the target DB differs. Program remembers old and new values of KDRAW for draws and replaces old values by new values during copy process (of parts, techoperations, techparameters).

5.4. Messages on parts export process

After pressing button **Export marked** information about selected draw and marked positions is written to the log file Tmp\export.log that later can be viewed with menu item **Export protocol** (button  of the toolbar **Projects and orders**). Here is a sample protocol text:

==========

12.04.2019 23:22:50.65

-

-------- Exporting parts from D:\BSHIP\SAMPLES\EN103_1\ --------

Options: DBF=1 DWG=1 FPD=0 Technology=0

Export folder: D:\TMP_981

Created subfolder D:\TMP_981\Dbf

Created subfolder D:\TMP_981\Dbf\draws.dbf

Created subfolder D:\TMP_981\Dbf\specp.dbf

Created subfolder D:\TMP_981\Dbf\vid_mat.dbf

Created subfolder D:\TMP_981\Dbf\klsmater.dbf

Draw EN103-115-008 (old KDRAW=3)

Positions marked: 2

Here is a sample text about export of the draw to which exported parts are con-

nected to:

Copying draw for parts to draws.dbf

Draw EN103-115-008 (old KDRAW=3) has been added with new KDRAW=1

Here is a sample text when the draw already exists in the target DB (repeated copying is not executed):

Copying draw of the model to draws.dbf

Draw EN103-112-001 (old KDRAW=2) already exists in target folder DB with KDRAW=4. Skipped

Sample text concerning copying materials:

Copying materials for parts to klsmater.dbf

Material 00524350224 (of type 10, grade PCD32) has been added

Material 00304254376 (of type 30, grade PCA32) has been added

Material 00524353037 already exists in klsmater.dbf. Skipped

Sample text concerning copying marked parts:

Copying parts to specp.dbf

Position 40 (old KDRAW=1, new KDRAW=5) has been added

Position 282 (old KDRAW=2, new KDRAW=3) has been added

Position 800 (old KDRAW=2, new KDRAW=3) already exists in specp.dbf. Skipped

Sample text concerning copying technological operations for marked parts:

Copying parts techoperations to teh_oper.dbf

Exporting techoperations of position 471 (old KDRAW=4, new KDRAW=3):

operation 0101 has been added

operation 0201 has been added

Techoperations of position 522 (old KDRAW=4, new KDRAW=3) already exist in the target teh_oper.dbf. Skipped

Sample text concerning copying technological parameters for marked parts:

Copying parts technological parameters to sign_par_obj.dbf

Exporting technological parameters of position 471 (old KDRAW=4, new KDRAW=3):

parameter SS (general 1 12) has been added

parameter LL (general 1 0.37) has been added

parameter EGI (general 1 no) has been added

parameter AFA (chamfer 1 35) has been added

parameter BFA (chamfer 1 7) has been added

parameter LFA (chamfer 1 0.23) has been added

Here is a sample text concerning copying DWG files of parts (files with the same names are overwritten):

*Copying files *.dwg from DWG*

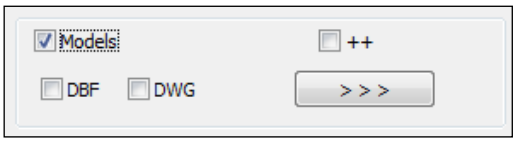
Copied DWG\1690101.dwg
Not found DWG\1690222.dwg
Position 302 has no dwg file

Here is a sample text concerning copying DWG files of TNCs:
*Copying files *.dwg from TNK*
Copied DWG\1690100.dwg
Not found DWG\1690700.dwg
Position 770 has no dwg file

5.5. Export of models

This export mode is used when it is necessary to transfer data on selected models of the current order. With this draws information connected with exported models is being exported too. Module **Mdet** works with these models.

To activate area **Models** it is necessary to switch on checkbox with the same name in the dialog box **Export order to transit folder** (dr. 72).



Drawing 72. Area **Models** (after activation)

Export volume is ruled by checkboxes: **DBF** and **DWG**. Checkbox **++** (at the right) switches both checkboxes on/off at once. Checkboxes designation is to choose types of objects to be exported (at least one must be set):

- **DBF** — copying records of marked models (table modeli.dbf) and corresponding draws to which models are connected to (table draws.dbf);

- **DWG** — copying DWG files of marked models.

Button > > > starts next step of models export. Folder described as transit folder is being verified. If folder exists and non-empty then a warning will be output (see dr. 67). User must select a way of work continuation.

If **Yes** (Да) then next window is opened (dr. 73).

At the initial state of the window the info line displays message with number of draws in the current order. User must select draws one by one, mark models to be exported and with button **To export marked** start copying models of the selected draw.

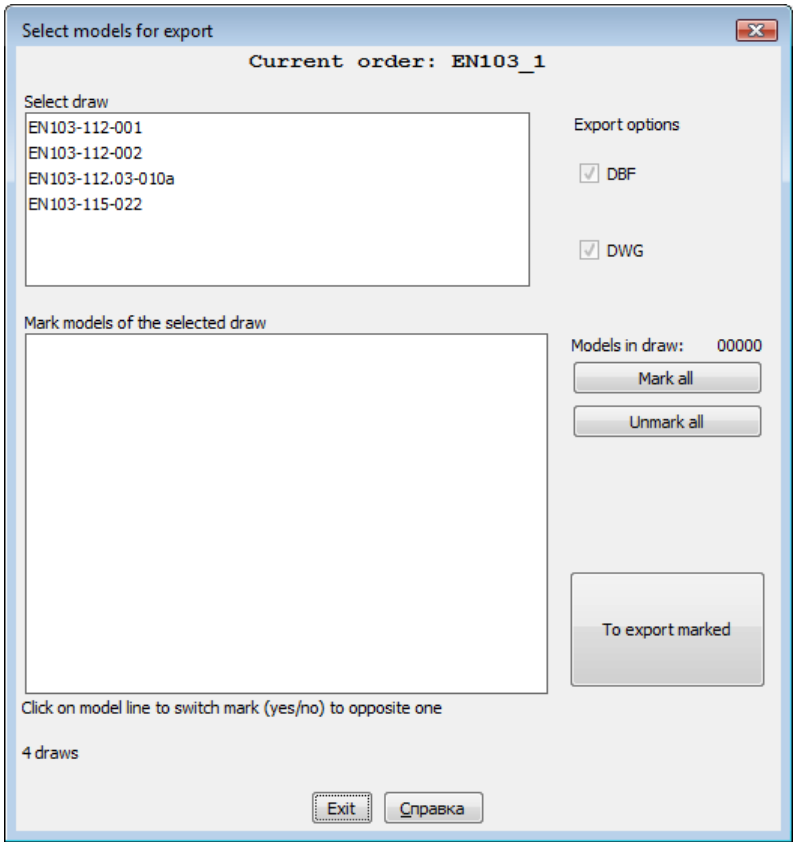
Dialog contents is as follows:

- listbox **Select draw**, to select a draw;

- listbox **Mark models of the selected draw**, to marks models (in the selected draw) to be exported;

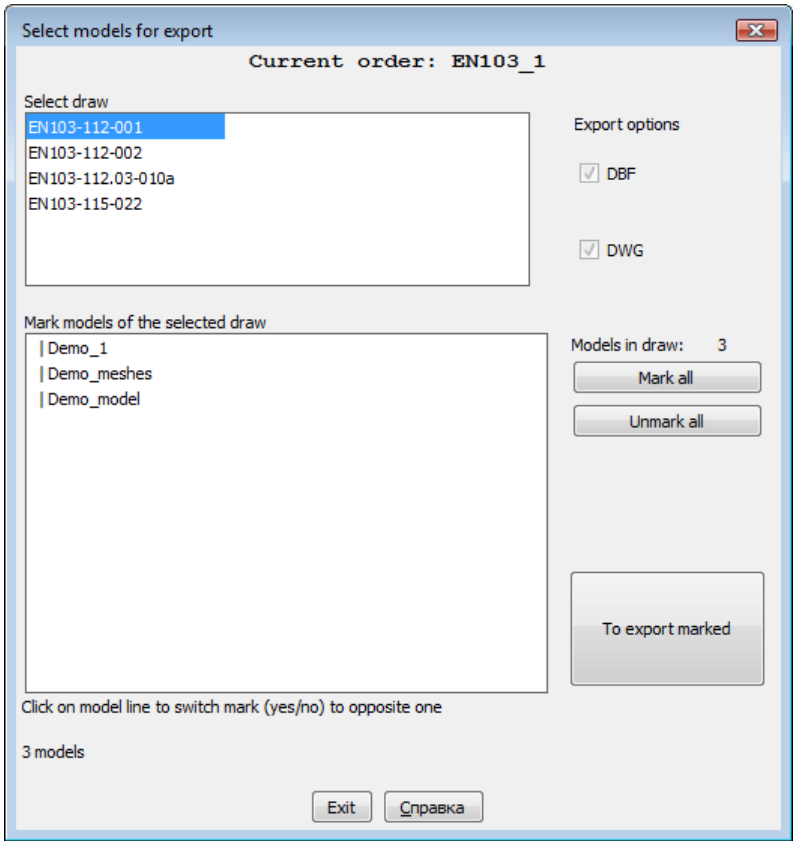
- area **Export options**, reflects types of exported objects selected in dialog **Export order to transit folder** (see dr. 72);

- buttons at the right hand, to manage model marking.



Drawing 73. Dialog box **Select models for export**

The first step must be selection of a draw in the upper listbox. After that the lower listbox will show list of all the models connected to this draw (dr. 74).



Drawing 74. Models list for selected draw

The required models must be marked. Marking is done by mouse left-click on the corresponding line. If model was unmarked before click then it will get selection sign at the beginning (symbol ‘v’, similar to dr. 70).

Clicking on earlier marked line will unmark it. At any moment info line shows how many models are marked for export.

Button **Mark all** helps to mark all the models of the draw at once. Button **Unmark all** clears all the marks for the draw models.

After marking all the required models user must click button **To export marked**. If later you will find that some models were missed (not marked) then you can export them separately for the same draw at the next step.

Program runs data export in the following sequence:

- if option **DBF** is set (see dr. 72) then data to target DB tables draws.dbf (draw), modeli.dbf (models) are being copied;

- if option **DWG** is set then model DWG files are copied.

Only those data that were found in the corresponding place (in DB table or in subfolder *Model* for DWG files) are exported. Final message looks so (dr. 75).

Drawing 75. Message on models export finish

Export of the draw has a specific feature because many tables refer KDRAW of the draw. Draw existence is verified for the name of DRAW parameter (e.g. EN103-112-001). The draw could be written to the target DB earlier (on previous steps of export or if export is run not to the transit folder but into the folder of existing order). If the draw does not exist in the target DB then it is saved there.

Attention! As a rule, KDRAW of the draw in the source DB and in the target DB differs. Program remembers old and new values of KDRAW for draws and replaces old values by new values during copy process.

5.6. Messages on models export process

After click on button **To export marked** information on selected draw and marked models is written to log file and looks like this:

-------- Exporting models from D:\RSHIP\SAMPLES\EN103_1\ --------

Options: DBF=1 DWG=1

Export folder: D:\Z0000_4E

Using existing subfolder D:\Z0000_4E\Dbf

Using existing subfolder D:\Z0000_4E\Model

Using existing file draws.dbf

Created table D:\Z0000_4E\Dbf\modeli.dbf

Draw EN103-112.03-010 (old KDRAW=2)

Models marked: 1

Text about copying the draw during models export is similar to text for copying draw during parts export.

Sample text about copying models:

Copying models to modeli.dbf

Model Demo_SERVIS (old KDRAW=1, new KDRAW=2) has been added

Model Aft_part (old KDRAW=1, new KDRAW=2) already exists in modeli.dbf. Skipped

Sample text in the protocol (log) for copying model DWG files:

*Copying files *.dwg from MODEL*

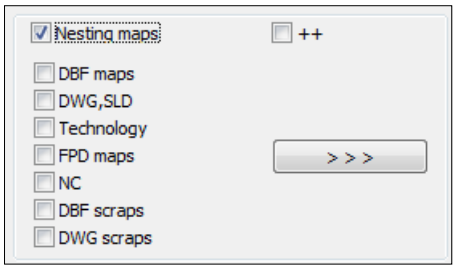
Copied MODEL\Demo_SERVIS.dwg

5.7. Export of nesting maps

This export mode is applied when user wants to transfer data of selected nesting maps for the current order. This mode is more complex and has greater volume of data in comparison with the mode of exporting parts because all the bound information is exported too: parts, draws (specifications), TNC documents, NC programs.

Warning. There is an option of exporting scraps but it has only reference value because data are exported into a new folder *Scraps* (in real life scraps table is not connected with an order). Moreover, DWG files of curved scraps (non-rectangular scraps for future nesting) has unsynchronized ID attributes (they should be replaced for new values inside DWG).

To activate area **Nesting maps** it is necessary to set checkbox with identic name (dr. 76).



Drawing 76. Area **Nesting maps** (after activation)

Volume of export data is defined by checkboxes: **DBF maps**, **DWG,SLD**, **Technology**, **FPD maps**, **NC**, **DBF scraps**, **DWG scraps**. Control checkbox **++** serves for simultaneous setting all the seven checkboxes. Checkboxes role is to select types of objects to be exported (at least one of them must be set):

- **DBF maps**, copying records of marked maps (table kr_list.dbf), auxiliary lists of part locations in nesting maps (table det_zak.dbf), used parts (table specp.dbf), mentioned draws (table draws.dbf), used parts materials (table klsmater.dbf);

- **DWG,SLD**, copying DWG and SLD files with geometry of marked nesting maps;

- **Technology**, copying records of technological operations attached for manufacturing parts of used positions (table teh_oper.dbf), technological parameters of handling parts (table sign_par_obj.dbf), as well as records of draws and parts (even if option **DBF maps** is off);

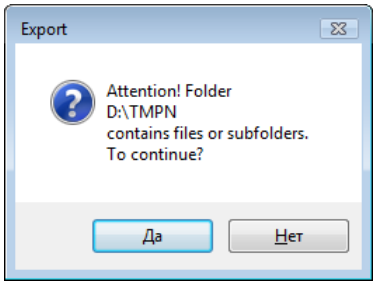
- **FPD maps**, copying DWG files with TNC documents of marked nesting maps;

- **NC**, copying files of NC programs (cutting, marking) created for marked maps;

- **DBF scraps**, copying records created in the scraps table (otxod.dbf); this option is reference only;

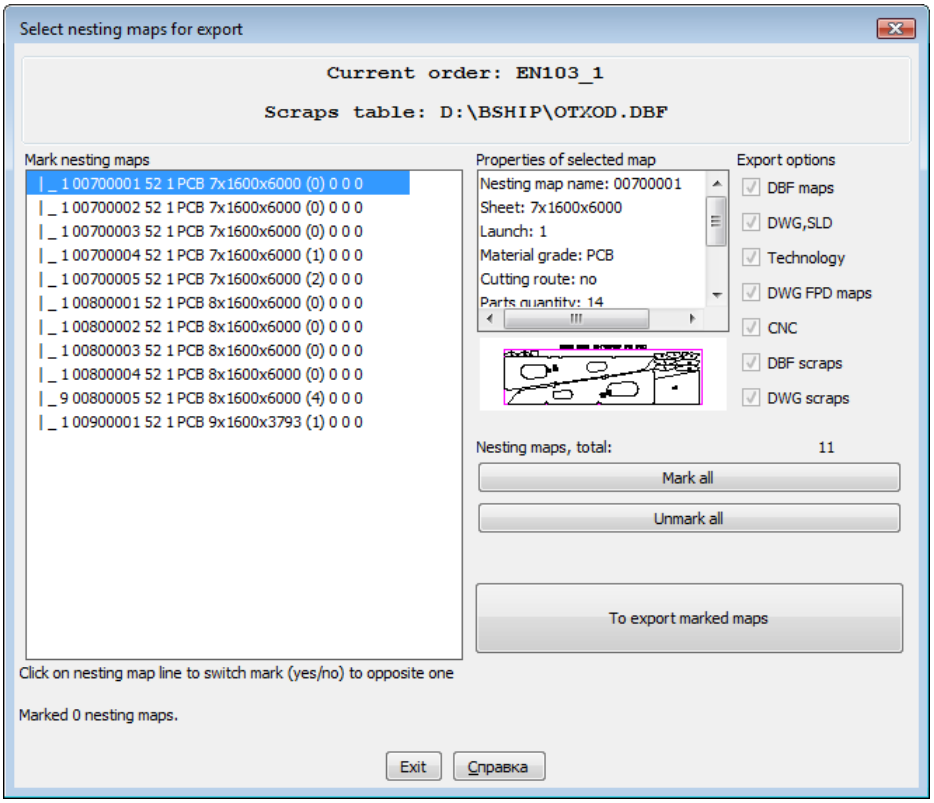
- **DWG scraps**, copying DWG files with geometry of non-rectangular scraps (if scraps of this type are applied in maps); this option is reference only.

Button [> > >] moves user to the next step inside export of nesting maps. At the beginning program verifies folder entered as transit folder for copying. If folder exists and non-empty then additional message is produced (dr. 77).



Drawing 77. Warning about existence of files and subfolders

If **No** (Нет) then user will return to the dialog **Export order to transit folder** where he can press button **Clean export folder if exists**. If **Yes** (Да) then process will go on and window for selection of nesting maps will be opened (dr. 78).



Drawing 78. Dialog box **Select nesting maps for export**

At initial state info line shows message about total quantity of maps in the current order. User must mark maps to be exported and with button **To export marked maps** start process of copying these maps.

Here is a contents of the dialog box:

- listbox **Mark nesting maps**, list of all the maps in current order for marking maps to be exported;

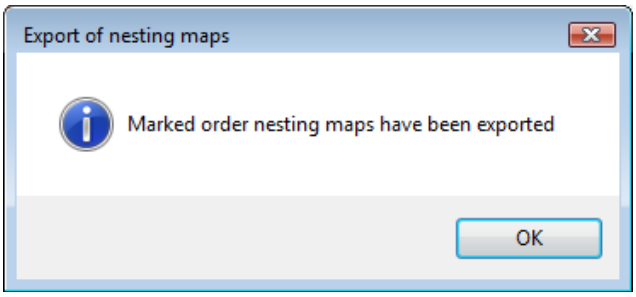
- area **Properties of selected map**, shows parameters of selected map as well its slide image;

- area **Export options**, shows types of exported objects selected in the window **Export order to transit folder** (see dr. 65);

- buttons (at the right), to help marking of nesting maps.

In the list **Mark nesting maps** it is necessary to mark maps to be exported. It is done by click on the corresponding map line. Repeated click on the line removes mark sign (symbol 'v'). Button **Mark all** puts marks to all the maps. To clear marks from all maps press button **Unmark all**. At any moment info line displays how many maps are already marked for export.

After marking maps user must start copying process with button **To export marked maps**. On export finish message is opened (dr. 79).



Drawing 79. Final message about export of nesting maps

Program runs export of maps and attached data (parts, draws, materials, etc.) in the following sequence:

- if option **DBF maps** is set (see dr. 76) then data to target DB tables are being copied: klsmater.dbf (materials), kr_list.dbf (nesting maps), draws.dbf (draws whose parts are inserted into maps), det_zak.dbf (additional list of parts placement in maps), specp.dbf (parts involved in marked maps);

- if option **DWG,SLD** is set then maps DWG and SLD files are being copied;

- if option **Technology** is set then data to target tables are copied: teh_oper.dbf (technological operations for manufacturing parts from marked maps), sign_par_obj.dbf (technological parameters for manufacturing parts from marked maps);

- if option **FPD maps** is set then DWG files of map TNC documents are copied;

- if option **NC** is set then earlier generated NC files for marked maps are copied (any extensions of the files in order folder *PI*);

- if option **DBF scraps** is set then data for table otxod.dbf (scraps) are copied;

- if option **DWG scraps** is set then DWG files of scraps are copied (only for non-rectangular scraps).

Only those data that were found in the corresponding place (in DB table or in subfolders for files) are exported.

Export of draws connected with involved parts has a specific feature because many tables refer KDRAW of the draw. Draw existence is verified for the name of DRAW parameter (e.g. EN103-112-001). The draw could be written to the target DB earlier (on previous steps of export or if export is run not to the transit folder but into the folder of existing order). If the draw does not exist in the target DB then it is saved there.

Attention! As a rule, KDRAW of the draw in the source DB and in the target DB differs. Program remembers old and new values of KDRAW for draws and re-

places old values by new values during copy process.

5.8. Messages on nesting maps export process

Information on marked nesting maps after clicking **To export marked maps** is written to export protocol file in such a manner:

==========

12.04.2019 13:56:29.33

-

-------- Exporting nesting maps from D:\BSHIP\SAMPLES\EN103_1\ --------

Options: DBF_maps=1 DWG,SLD=1 Technology=1 FPD_maps=1

NC=1 DBF_scraps=1 DWG_scraps=1

Export folder: D:\TMP_98

Using existing subfolder D:\TMP_98\Dbf

Using existing subfolder D:\TMP_98\Karty

Using existing subfolder D:\TMP_98\Tnk_krt

Using existing subfolder D:\TMP_98\Pl

Using existing subfolder D:\TMP_98\Scraps

Using existing subfolder D:\TMP_98\Scraps\Scraps_dwg

Using existing file kr_list.dbf

Using existing file det_zak.dbf

Using existing file draws.dbf

Using existing file specp.dbf

Using existing file vid_mat.dbf

Using existing file klsmater.dbf

Using existing file otxod.dbf

Marked nesting maps: 10

Sample text from protocol of export to DB tables of materials, maps, draws, parts (excerpts):

Copying materials of nesting maps to klsmater.dbf

Material 00524353037 (type 10, grade A40S) has been added

material 11122233 (type 10, grade PCB) has been added

-

Copying nesting maps to kr_list.dbf

Nesting map 00400001 has been added

Nesting map 00400002 has been added

Nesting map 00700003 has been added

-

Copying draws of parts from nesting maps to draws.dbf

Parts of maps to be exported use the following draws:

KDRAW=("2" "1")

DRAW=("EN103-112.03-010" "EN103-112-001")

Target DB has no draws

Draw EN103-112.03-010 (old KDRAW=2) has been added to target DB with new KDRAW=1

Draw EN103-112-001 (old KDRAW=1) has been added to target DB with new KDRAW=2

-

Copying part lists of nesting maps to det_zak.dbf

part mark 1807 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 1804 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 1806 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 315 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 290 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 1023 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 1023 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 1023 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 718 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

part mark 1255 (old KDRAW=2, new KDRAW=1) to map 00700001 has been added

Part list of nesting map 00700001 has been output

part mark 1610 (old KDRAW=2, new KDRAW=1) to map 00700003 has been added

part mark 1609 (old KDRAW=2, new KDRAW=1) to map 00700003 has been added

part mark 436 (old KDRAW=2, new KDRAW=1) to map 00700003 has been added

part mark 434 (old KDRAW=2, new KDRAW=1) to map 00700003 has been added

part mark 514 (old KDRAW=2, new KDRAW=1) to map 00700003 has been added

part mark 1080 (old KDRAW=2, new KDRAW=1) to map 00700003 has been added

part mark 1060 (old KDRAW=2, new KDRAW=1) to map 00700003 has been added

Part list of nesting map 00700003 has been output

part mark 553 (old KDRAW=1, new KDRAW=2) to map 00400002 has been added

part mark 98 (old KDRAW=1, new KDRAW=2) to map 00400002 has been added

part mark 185 (old KDRAW=1, new KDRAW=2) to map 00400002 has been added

part mark 422 (old KDRAW=1, new KDRAW=2) to map 00400002 has been added

part mark 423 (old KDRAW=1, new KDRAW=2) to map 00400002 has been added

Part list of nesting map 00400002 has been output

-

Copying parts of nesting maps to specp.dbf

Output parts of the nesting map 00400001

Position 1807 (old KDRAW=2, new KDRAW=1) has been added

Position 1804 (old KDRAW=2, new KDRAW=1) has been added

Position 1806 (old KDRAW=2, new KDRAW=1) has been added

Position 1023 (old KDRAW=2, new KDRAW=1) already exists in specp.dbf. Skipped

Position 1023 (old KDRAW=2, new KDRAW=1) already exists in specp.dbf. Skipped

Position 903 (old KDRAW=2, new KDRAW=1) already exists in specp.dbf. Skipped

Position 422 (old KDRAW=2, new KDRAW=1) has been added

Position 397 (old KDRAW=2, new KDRAW=1) has been added

Position 240 (old KDRAW=2, new KDRAW=1) has been added

Position 718 (old KDRAW=2, new KDRAW=1) has been added

Position 1255 (old KDRAW=2, new KDRAW=1) has been added

Output parts of the nesting map 00400002

Position 1610 (old KDRAW=2, new KDRAW=1) has been added

Position 1609 (old KDRAW=2, new KDRAW=1) has been added

Position 436 (old KDRAW=2, new KDRAW=1) has been added

Position 434 (old KDRAW=2, new KDRAW=1) has been added

Position 385 (old KDRAW=2, new KDRAW=1) has been added

Position 265 (old KDRAW=2, new KDRAW=1) has been added

Position 1285 (old KDRAW=2, new KDRAW=1) has been added

Output parts of the nesting map 00700003

Position 4009 (old KDRAW=1, new KDRAW=2) has been added

Position 462 (old KDRAW=1, new KDRAW=2) has been added

Position 4008 (old KDRAW=1, new KDRAW=2) has been added

Position 210 (old KDRAW=1, new KDRAW=2) has been added

Position 417 (old KDRAW=1, new KDRAW=2) has been added

Position 417 (old KDRAW=1, new KDRAW=2) already exists in specp.dbf. Skipped

Position 454 (old KDRAW=1, new KDRAW=2) has been added

Position 454 (old KDRAW=1, new KDRAW=2) already exists in specp.dbf. Skipped

Position 262 (old KDRAW=1, new KDRAW=2) has been added

Position 241 (old KDRAW=1, new KDRAW=2) has been added

Sample text from protocol of export files of maps, parts and NCs (identical files

are overwritten):

*Copying files *.dwg from KARTY*
Copied KARTY\00400001.dwg
Copied KARTY\00400002.dwg
Copied KARTY\00700003.dwg
-
*Copying files *.sld from KARTY*
Copied KARTY\00400001.sld
Copied KARTY\00400002.sld
Copied KARTY\00700003.sld
-
*Copying files *.dwg from TNK_KRT*
Not found TNK_KRT\00400001.dwg
Not found TNK_KRT\00400002.dwg
Not found TNK_KRT\00700003.dwg
-
*Copying files *.* from PL*
*Not found files PL\00400001.**
Copied PL\00400002.ESS
*Not found files PL\00700003.**

Sample text from protocol of export to subfolder *Scraps* (table otxod.dbf and DWG files of curved scraps):

Copying scraps of nesting maps
Source scraps table: D:\R201A\Otxod225\otxod.dbf
Target scraps table: D:\TMP_98\Scraps\otxod.dbf
Source otxod.dbf has no scraps for the nesting map 00400001 from the order EN103_1
Output scraps of the map 00400002 from the order EN103_1
Scrap 00400002_1 (old ID=87, new ID=1) of order EN103_1 has been output to the target otxod.dbf
Scrap 00400002_2 (old ID=86, new ID=2) of order EN103_1 has been output to the target otxod.dbf
Scrap 00400002_3 (old ID=74, new ID=3) of order EN103_1 has been output to the target otxod.dbf
Scrap 00400002_4 (old ID=75, new ID=4) of order EN103_1 has been output to the target otxod.dbf
Output scraps of the map 00700003 from the order EN103_1
Scrap 00700003_1 (old ID=49, new ID=5) of order EN103_1 has been output to the target otxod.dbf
Scrap 00700003_2 (old ID=50, new ID=6) of order EN103_1 has been output to the target otxod.dbf
(scrap is nested, map 00700081)
Scrap 00700003_3 (old ID=51, new ID=7) of order EN103_1 has been output to the target otxod.dbf

Scrap 00700003_4 (old ID=52, new ID=8) of order EN103_1 has been output to the target otxod.dbf

-

*Copying files *.dwg from SCRAPS_DWG*

Nesting map 00400001 has no scraps (OTHOD=0 in kr_list.dbf)

Nesting map 00400002 has 4 scraps (OTHOD=4 in kr_list.dbf)

(only rectangular scraps)

Nesting map 00700003 has 4 scraps (OTHOD=4 in kr_list.dbf)

Copied Scraps\Scraps_dwg\49.dwg

Not found file D:\Restore\Otxod225\Scraps_dwg\50.dwg

Copied Scraps\Scraps_dwg\51.dwg

(3 curved, 1 rectangular)

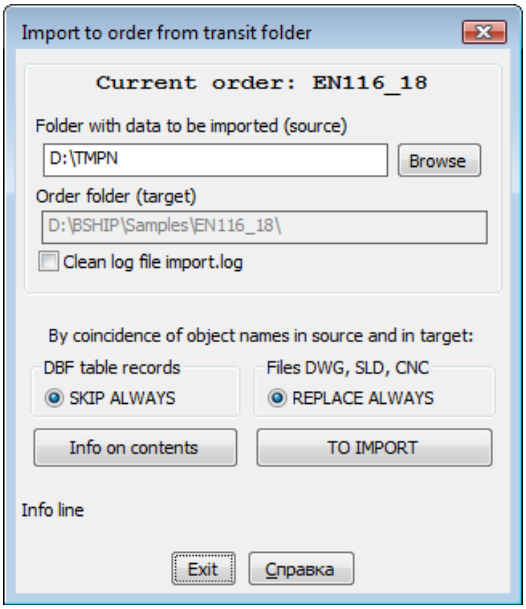
If scrap is already used for creation of child nesting map then message is written to protocol file (see sample with scrap 0070003_2). This map is not automatically exported if user did not mark it side by side with parent map. User must do it himself.

Attention! Scraps export is for reference only.

5.9. Import operation

Command **Import** is usually used when export was run to transit folder and there is necessity to copy prepared data to other order. It is possible to use old order instead of transit folder, if an order is to be copied with purpose of uniting orders.

First of all target order must be set as current. Next command **Import** must be run from drop-down menu BDATA. Command opens dialog box **Import to order from transit folder** (dr. 80).



Drawing 80. Dialog box **Import to order from transit folder**

In this window path to source folder from which import will be done must be entered in the field **Folder with data to be imported (source)**. Folder can be selected with button **Browse** too.

Data in the source folder must be created earlier with valid order subfolders structure and valid order files location (DBF tables, DWG files, NC programs, slides).

The structure created by **Export** command is valid and coincides with order data structure created by new order command.

In the field **Order folder (target)** there is shown as reference path to current order folder. It cannot be changed in this dialog box (only with order activation command).

During import operation text log (protocol) file is being created and filled, its name is import.log and it is located in folder *Tmp* inside **B-Ship** root folder. By default all the import information is appended to the end of protocol file. If to set checkbox **Clean log file import.log** then file will be cleaned before import start. Protocol file Tmp\import.log can be opened for editing with menu item **Import protocol** (button  of the toolbar **Projects and orders**).

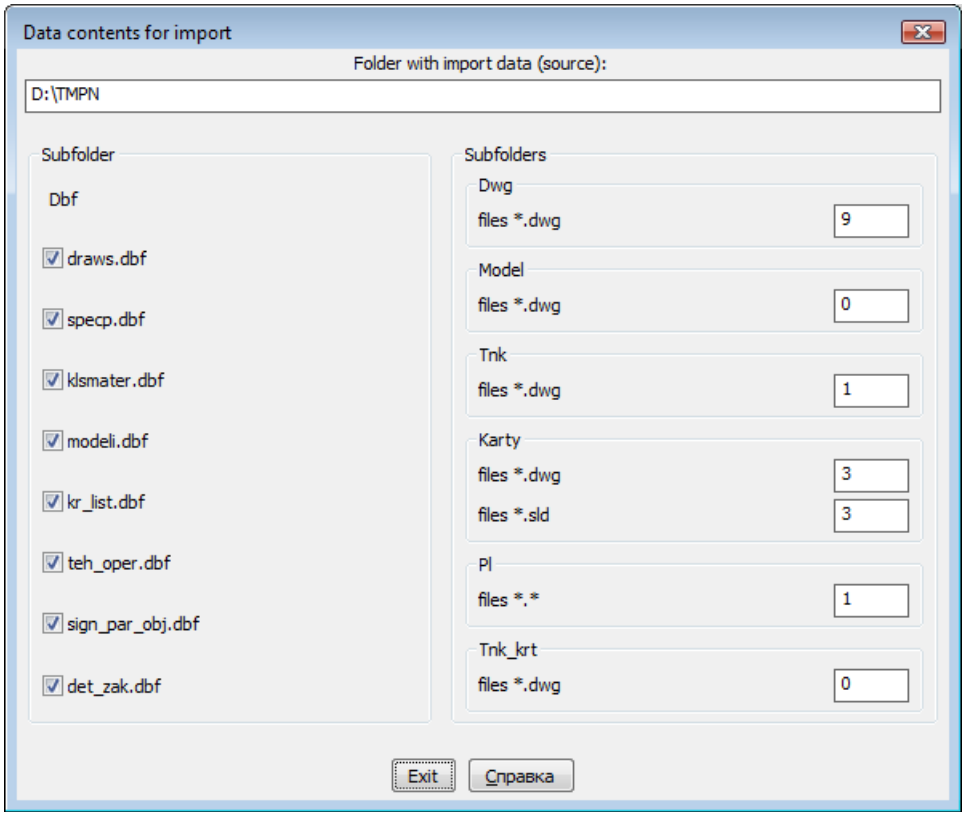
Unlike export operation the command **Import** has no opportunity to filter content of imported data. Everything from transit (source) folder is being copied.

In the area **By coincidence of object names in source and in target** there is referencely shown algorithm of overwriting data while copying:

- DBF table records are skipped if target DB already has identic objects (parts, maps, materials, etc.);

- files DWG, SLD, NC are replaced in the target order even there were identic files before import.

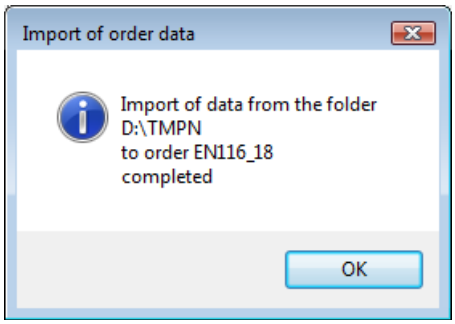
With button **Info on contents** use can estimate data volume prepared for import in the source folder. After pressing button there opens dialog box **Data contents for import** (dr. 81).



Drawing 81. Dialog box **Data contents for import**

In the left column by checkboxes there shown list of DBF files prepared for import. The right column gives information on quantity of the files prepared for copying in subfolders *Dwg*, *Model*, *Tnk*, *Karty*, *Pl*, *Tnk_krt*. The window does not reflect file Scraps\otxod.dbf because scraps import is not executed (scraps table does not reside in order folder, it is located outside orders).

For immediate launch of import operation in the dialog box **Import to order from transit folder** (see dr. 80) user must press button **TO IMPORT**. On end of import a message is generated (dr. 82).



Drawing 82. Final import message

5.10. Messages on import process

Information about import processing is written to the protocol file Tmp\import.log.

Here is how general information on import settings looks like:

==========

14.04.2019 12:12:04.50

-

---------- Import to D:\V0011_177\ ----------

Replacement mode for DBF: SKIP object ALWAYS

Replacement mode for DWG: REPLACE file ALWAYS

Folder with data to be imported: D:\TMP99_1

Subfolders: ("DBF" "DOC" "DWG" "IDX" "IDX2000" "KARTY" "MODEL" "PL" "POLKA" "Scraps" "SHABLON" "SOLIDS" "TNK" "TNK_KRT" "users")

In import operation only subfolders *Dbf*, *Dwg*, *Karty*, *Model*, *Pl*, *Tnk*, *Tnk_krt* are used. Contents of other folders is ignored even if they are present.

Here is a sample information on copying draws:

Number of imported draws: 5

-

Copying draws to draws.dbf

Target order contains these draws:

KDRAW=("1" "2" "3" "4" "5" "6")

DRAW=("362.012.0012" "1-2-36" "459_UU" "4000-732" "362.012.0012-1" "7095-5")

Draws being imported:

Draw EN103-112-001 (old KDRAW=1) has been added to target DB with new KDRAW=8

Draw EN103-112-002 (old KDRAW=2) has been added to target DB with new KDRAW=9

Draw EN103-112.03-010 (old KDRAW=3) has been added to target DB with new KDRAW=10

Draw EN103-115-008 (old KDRAW=4) has been added to target DB with new KDRAW=11

Sample text on copying materials:
Number of materials: 36
-
Copying materials to klsmater.dbf
Material 00302770428 already exists in the target DB. Skipped
Material 00304254256 (type 30, grade PCA32) added
Material 00304254272 already exists in the target DB. Skipped
Material 00304254336 already exists in the target DB. Skipped
Material 00304254474 (type 30, grade PCA32) added
Material 00304254744 (type 31, grade PCA32) added
Material 00304254762 already exists in the target DB. Skipped
Material 00304254782 (type 30, grade PCA32) added
Material 00309453074 already exists in the target DB. Skipped
Material 00309453098 already exists in the target DB. Skipped
Material 00309453128 (type 30, grade A40S) added

Sample text on importing parts:
Number of parts: 56
-
Copying parts to specp.dbf
Position 40 (old KDRAW=2, new KDRAW=8) has been added
Position 41 (old KDRAW=2, new KDRAW=8) has been added
Position 47 (old KDRAW=2, new KDRAW=8) has been added
Position 140 (old KDRAW=2, new KDRAW=8) has been added
Position 231 (old KDRAW=2, new KDRAW=8) has been added
Position 240 (old KDRAW=4, new KDRAW=10) has been added
Position 240 (old KDRAW=2, new KDRAW=8) has been added
Position 241 (old KDRAW=2, new KDRAW=8) has been added
Position 385 (old KDRAW=4, new KDRAW=10) has been added
Position 422 (old KDRAW=2, new KDRAW=8) has been added
Position 434 (old KDRAW=4, new KDRAW=10) has been added
Position 436 (old KDRAW=4, new KDRAW=10) has been added
Position 436 (old KDRAW=2, new KDRAW=8) has been added
Position 440 (old KDRAW=2, new KDRAW=8) has been added
Position 460 (old KDRAW=2, new KDRAW=8) has been added
Position 462 (old KDRAW=2, new KDRAW=8) has been added
Position 469 (old KDRAW=4, new KDRAW=10) has been added
Position 470 (old KDRAW=4, new KDRAW=10) has been added
Position 551 (old KDRAW=4, new KDRAW=10) has been added

Sample text on technological operations and parameters:
Number of techoperations: 7
-

Copying techoperations to teh_oper.dbf

Techoperation 0705 has been added to part 192 (old KDRAW=3, new KDRAW=6)

Techoperation 0801 has been added to part 192 (old KDRAW=3, new KDRAW=6)

Techoperation 0109 has been added to part 192 (old KDRAW=3, new KDRAW=6)

Techoperation 0901 has been added to part 192 (old KDRAW=3, new KDRAW=6)

Techoperation 0113 has been added to part 1 (old KDRAW=6, new KDRAW=9)

Techoperation 0301 has been added to part 1 (old KDRAW=6, new KDRAW=9)

Techoperation 0404 has been added to part 1 (old KDRAW=6, new KDRAW=9)

-

Number of technological parameters: 8

-

Copying technological parameters to sign_par_obj.dbf

Parameter KOL (general 1 KOL 2) has been added to position 191 (old KDRAW=3, new KDRAW=6)

Parameter LRA (general 1 LRA 30.58) has been added to position 191 (old KDRAW=3, new KDRAW=6)

Parameter EPG (general 1 EPG no) has been added to position 191 (old KDRAW=3, new KDRAW=6)

Parameter TFA (chamfer 1 TFA face) has been added to position 191 (old KDRAW=3, new KDRAW=6)

Parameter AFA (chamfer 1 AFA 12) has been added to position 191 (old KDRAW=3, new KDRAW=6)

Parameter BFA (chamfer 1 BFA 2) has been added to position 191 (old KDRAW=3, new KDRAW=6)

Parameter LFA (chamfer 1 LFA 0.6) has been added to position 191 (old KDRAW=3, new KDRAW=6)

Parameter FOF (chamfer 1 FOF convex) has been added to position 191 (old KDRAW=3, new KDRAW=6)

Sample text on models:

Number of models: 4

-

Copying models to modeli.dbf

Model Demo_DRAW_draw (old KDRAW=2, new KDRAW=8) has been added

Model 71144rast (old KDRAW=3, new KDRAW=9) has been added

Model Demo_SERVIS (old KDRAW=4, new KDRAW=10) has been added

Model 71144rast (old KDRAW=5, new KDRAW=11) has been added

Next in the protocol there is information about copying files from corresponding subfolders (*Dwg*, *Tnk*, *Model*, *Karty*, *Pl*, *Tnk_krt*):

*Copying files *.dwg from DWG*

*Folder DWG source: 5 files *.dwg*

File 1030044.dwg copied

File 1030045.dwg copied

File 1030046.dwg copied

File 1030060.dwg copied

File 1030061.dwg copied

-

*Copying files *.dwg from TNK*

-

*Copying files *.dwg from MODEL*

*Folder MODEL source: 3 files *.dwg*

File 71144rast.dwg copied

File Demo_DRAW_draw.dwg copied

File Demo_SERVIS.dwg copied

-

*Copying files *.dwg from KARTY*

*Folder KARTY source: 14 files *.dwg*

File 00400001.dwg copied

File 00400002.dwg copied

File 00700003.dwg copied

-

*Copying files *.sld from KARTY*

*Folder KARTY source: 14 files *.sld*

File 00400001.sld copied

File 00400002.sld copied

File 00700003.sld copied

-

*Copying files *.* from PL*

*Folder PL source: 1 file *.**

File 00400004.ESS copied

-

*Copying files *.dwg from TNK_KRT*

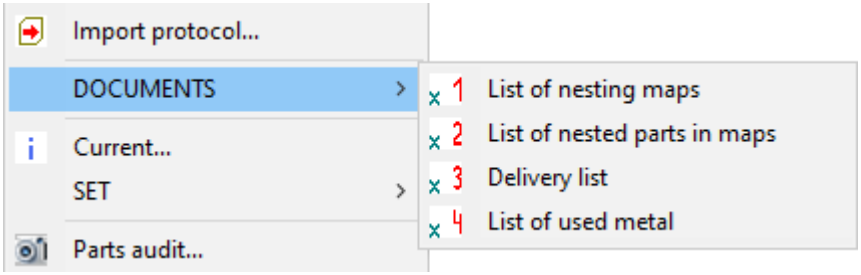
*Folder TNK_KRT source: 1 file *.dwg*
File 1030040.dwg replaced

If in some subfolder there are no files with required extension then the header is not followed by lines about copying files (e.g. no files *.dwg found in subfolder *Tnk*).

6. WORK WITH DOCUMENTS

6.1. Commands of DOCUMENTS submenu

Submenu **DOCUMENTS** (dr. 83) is designed for operations of forming documents in the format of Microsoft Excel (Excel must be installed beforehand). Submenu functions are similar to functions of toolbar **Documents**.



Drawing 83. Submenu **DOCUMENTS**

Commands use MS Excel version that is marked as working. It must be marked in the special INI-file BSHIP\Ini\excel.ini. The first line must have number of version, e.g. 12 (number 12 corresponds to Excel 2007).

Note. In case of calling Excel error program creates message:

Cannot connect to Excel with version from Ini\excel.ini. If excel.ini is OK, try to connect once more.

If fail is not caused by an error in excel.ini but by casual reasons (e.g. asynchronous load of different applications on the computer), then it is recommended to rerun command for forming document.

Submenu **DOCUMENTS** has two commands (items):

- **List of nesting maps**;
- **List of nested parts in maps**;
- **Delivery list**;
- **List of used metal**.

Documents are saved in files with extension .xls located in folder *Doc* of current order (e.g. *D:\BSHIP\EN103_33\Doc*). For security each new file gets number greater by one than the maximum number of the files existing in this folder (e.g. dvk28.xls).

Calculation is run without visualizing Excel itself. On finish a message about file creation is generated.

6.2. List of nesting maps

This calculation is run with button  of the toolbar **Documents**.

Document is being generated in Excel workbook file named vkrN.xls, where N is file number defined programmatically and not coinciding with number of any similar file (vkr*.xls) in the folder *Doc*.

While running the command is producing process information into command line,

e.g.:

Create nesting maps list...

Number of nesting maps output to the workbook = 11

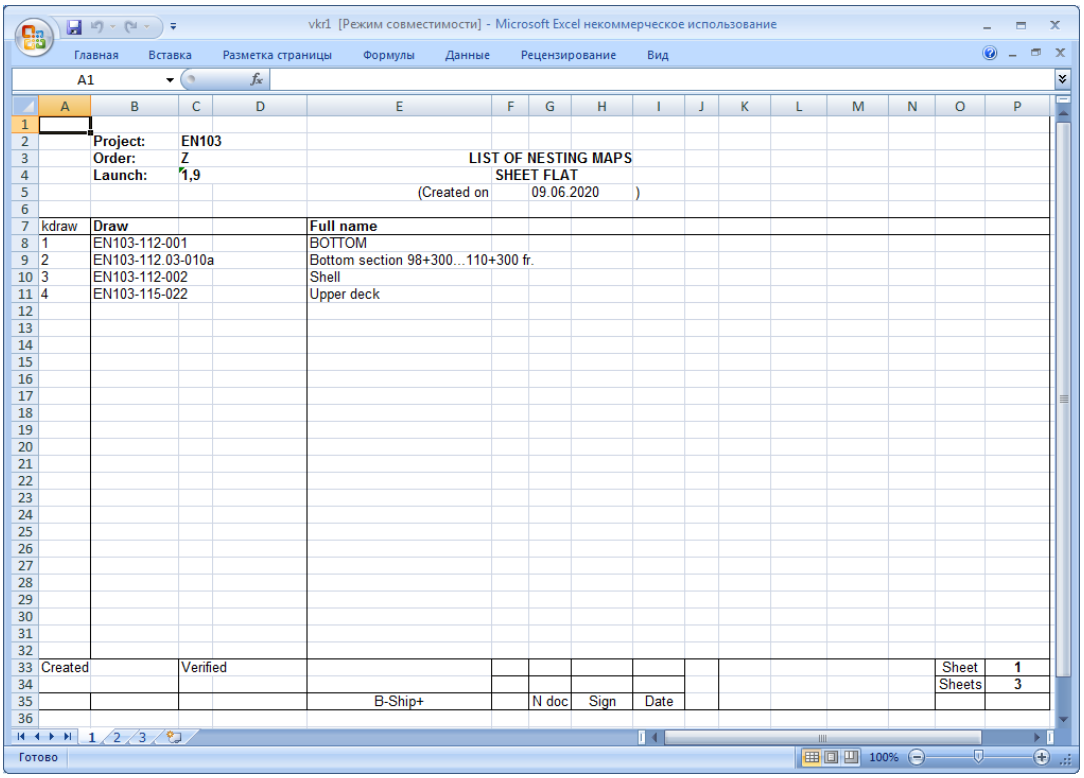
Number of Excel worksheets in the document = 3

Nesting maps output:

00700001 00700002 00700003 00700004 00700005 00800001 00800002 00800003 00800004 00800005 00900001

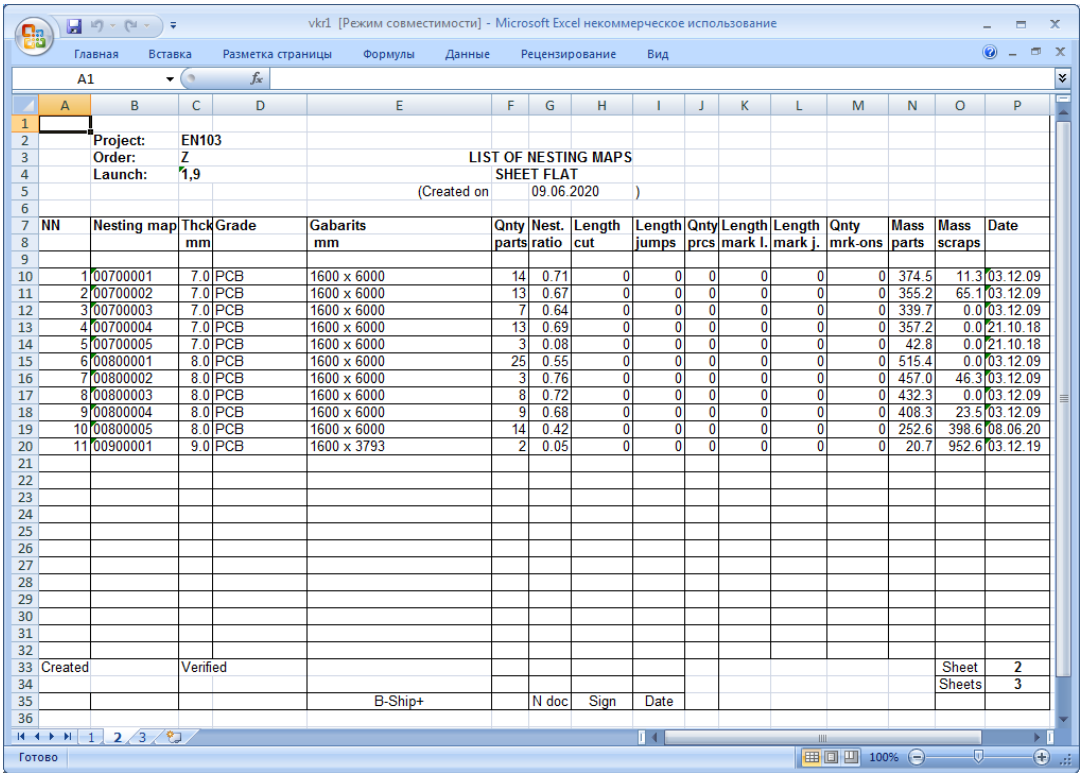
Created file D:\BSHIP\SAMPLES\EN103_1\Doc\vkr150.xls.

Dr. 84–86 show sample worksheets of created document.



Drawing 84. List of nesting maps (worksheet 1)

On the first sheet there is list of draws, on the next sheets there are nesting maps data (map name, thickness, grade, raw list gabarits, number of parts in map, nesting ratio, cut length, jumps length while cutting, number of pierces, marking length, jumps length while marking, number of switching on and off for marking instrument, total number of parts in map, total mass of created scraps, map calculation date).



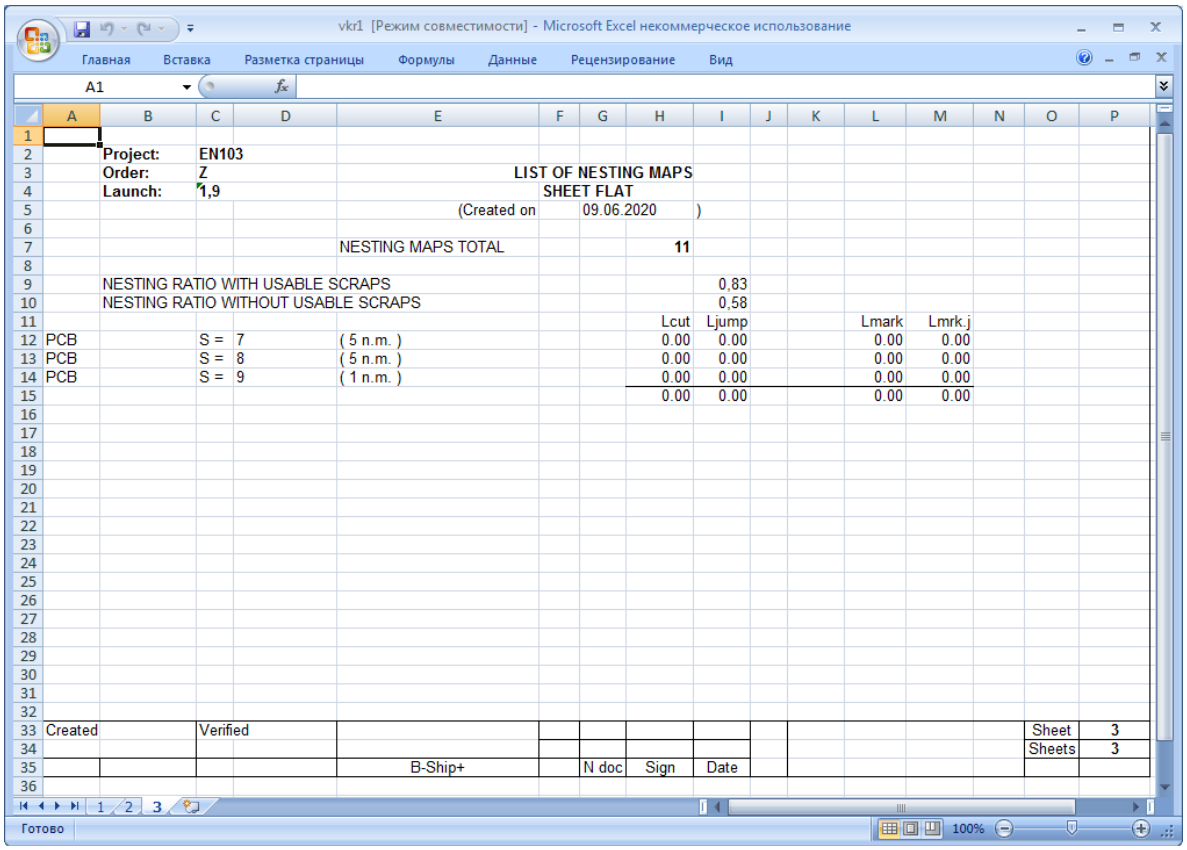
Project: EN103
Order: Z
Launch: 1,9

LIST OF NESTING MAPS
SHEET FLAT
(Created on 09.06.2020)

NN	Nesting map	Thck mm	Grade	Gabarits mm	Qnty parts	Nest. ratio	Length cut	Length jumps	Qnty prcs	Length mark l.	Length mark j.	Qnty mrk-ons	Mass parts	Mass scraps	Date
1	00700001	7.0	PCB	1600 x 6000	14	0.71	0	0	0	0	0	0	374.5	11.3	03.12.09
2	00700002	7.0	PCB	1600 x 6000	13	0.67	0	0	0	0	0	0	355.2	65.1	03.12.09
3	00700003	7.0	PCB	1600 x 6000	7	0.64	0	0	0	0	0	0	339.7	0.0	03.12.09
4	00700004	7.0	PCB	1600 x 6000	13	0.69	0	0	0	0	0	0	357.2	0.0	21.10.18
5	00700005	7.0	PCB	1600 x 6000	3	0.08	0	0	0	0	0	0	42.8	0.0	21.10.18
6	00800001	8.0	PCB	1600 x 6000	25	0.55	0	0	0	0	0	0	515.4	0.0	03.12.09
7	00800002	8.0	PCB	1600 x 6000	3	0.76	0	0	0	0	0	0	457.0	46.3	03.12.09
8	00800003	8.0	PCB	1600 x 6000	8	0.72	0	0	0	0	0	0	432.3	0.0	03.12.09
9	00800004	8.0	PCB	1600 x 6000	9	0.68	0	0	0	0	0	0	408.3	23.5	03.12.09
10	00800005	8.0	PCB	1600 x 6000	14	0.42	0	0	0	0	0	0	252.6	398.6	08.06.20
11	00900001	9.0	PCB	1600 x 3793	2	0.05	0	0	0	0	0	0	20.7	952.6	03.12.19

Created		Verified						Sheet	2
								Sheets	3
			B-Ship+		N doc	Sign	Date		

Drawing 85. List of nesting maps (worksheet 2)



Project: EN103
Order: Z
Launch: 1,9

LIST OF NESTING MAPS
SHEET FLAT
(Created on 09.06.2020)

NESTING MAPS TOTAL 11

NESTING RATIO WITH USABLE SCRAPS 0,83
NESTING RATIO WITHOUT USABLE SCRAPS 0,58

			Lcut	Ljump	Lmark	Lmrk.j
PCB	S = 7	(5 n.m.)	0.00	0.00	0.00	0.00
PCB	S = 8	(5 n.m.)	0.00	0.00	0.00	0.00
PCB	S = 9	(1 n.m.)	0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00

Created		Verified					Sheet	3
							Sheets	3
			B-Ship+	N doc	Sign	Date		

Drawing 86. List of nesting maps (the last worksheet)

The last worksheet contains summary data: quantity of nesting maps, nesting ratio with consideration of usable scraps and without usable scraps. After that there are summary data by material grades and thicknesses, including cutting kerf route length (switched on and off), by lengths of marking tool route. Under the horizontal line there

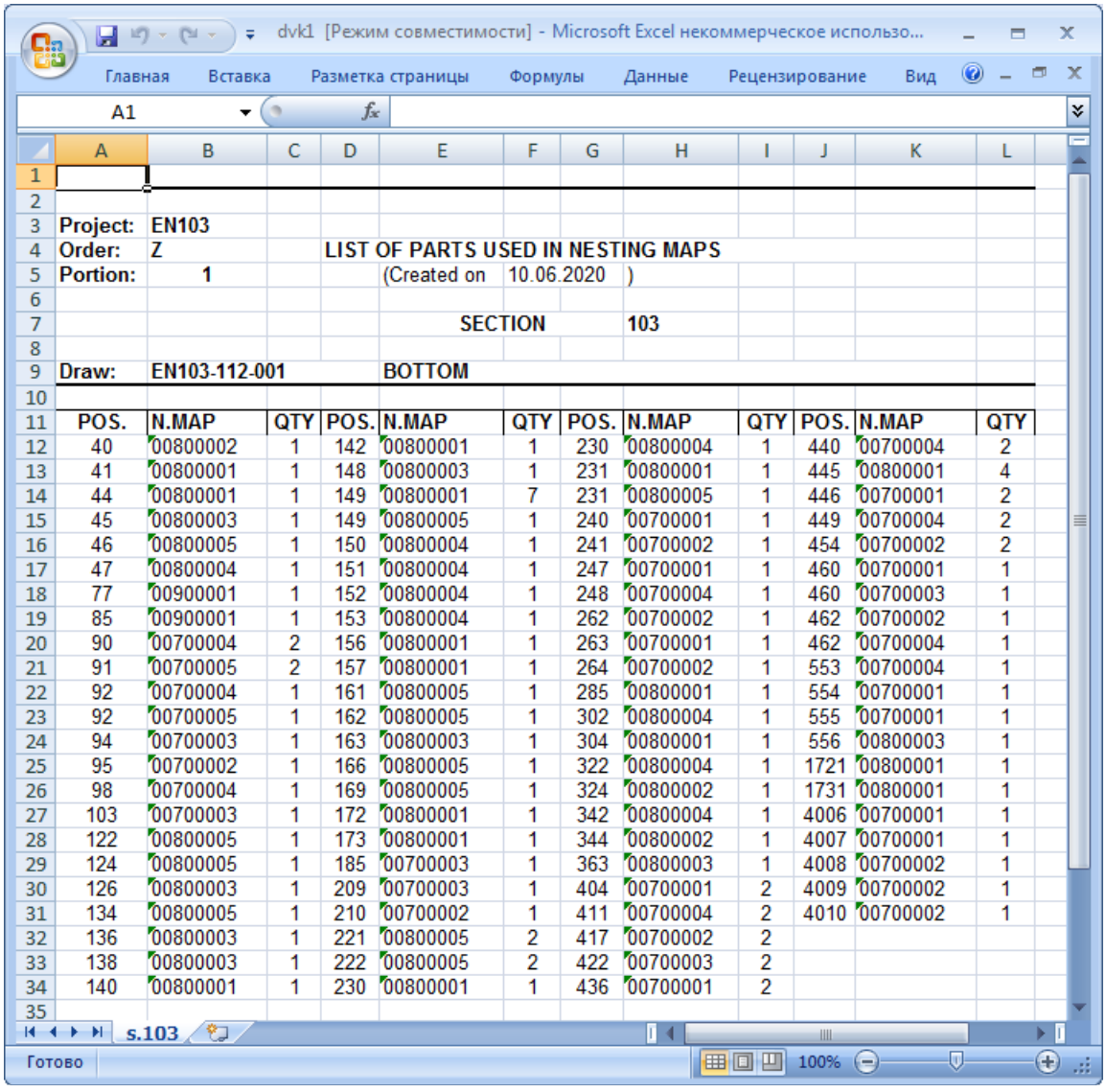
are summary data for cutting and marking of the current order (project + portion). They are shown as zeros if cutting route was not yet generated for the nesting maps involved into calculations.

6.3. List of nested parts in maps

This calculation is run with button  of toolbar **Documents**.

Document is formed in Excel workbook file with the number of worksheets corresponding to number of draws having nesting maps (tables draws.dbf and kr_list.dbf are used). The file name is dvkN.xls, where N is file number defined programmatically and not coinciding with number of any similar file (dvk*.xls) in the folder *Doc*.

On dr. 87 there is a sample document (list of nested parts in maps).



dvk1 [Режим совместимости] - Microsoft Excel некоммерческое использо...

Project: EN103
Order: Z
Portion: 1
LIST OF PARTS USED IN NESTING MAPS
(Created on 10.06.2020)
SECTION 103
Draw: EN103-112-001
BOTTOM

POS.	N.MAP	QTY	POS.	N.MAP	QTY	POS.	N.MAP	QTY	POS.	N.MAP	QTY
40	00800002	1	142	00800001	1	230	00800004	1	440	00700004	2
41	00800001	1	148	00800003	1	231	00800001	1	445	00800001	4
44	00800001	1	149	00800001	7	231	00800005	1	446	00700001	2
45	00800003	1	149	00800005	1	240	00700001	1	449	00700004	2
46	00800005	1	150	00800004	1	241	00700002	1	454	00700002	2
47	00800004	1	151	00800004	1	247	00700001	1	460	00700001	1
77	00900001	1	152	00800004	1	248	00700004	1	460	00700003	1
85	00900001	1	153	00800004	1	262	00700002	1	462	00700002	1
90	00700004	2	156	00800001	1	263	00700001	1	462	00700004	1
91	00700005	2	157	00800001	1	264	00700002	1	553	00700004	1
92	00700004	1	161	00800005	1	285	00800001	1	554	00700001	1
92	00700005	1	162	00800005	1	302	00800004	1	555	00700001	1
94	00700003	1	163	00800003	1	304	00800001	1	556	00800003	1
95	00700002	1	166	00800005	1	322	00800004	1	1721	00800001	1
98	00700004	1	169	00800005	1	324	00800002	1	1731	00800001	1
103	00700003	1	172	00800001	1	342	00800004	1	4006	00700001	1
122	00800005	1	173	00800001	1	344	00800002	1	4007	00700001	1
124	00800005	1	185	00700003	1	363	00800003	1	4008	00700002	1
126	00800003	1	209	00700003	1	404	00700001	2	4009	00700002	1
134	00800005	1	210	00700002	1	411	00700004	2	4010	00700002	1
136	00800003	1	221	00800005	2	417	00700002	2			
138	00800003	1	222	00800005	2	422	00700003	2			
140	00800001	1	230	00800001	1	436	00700001	2			

Drawing 87. List of parts used in maps

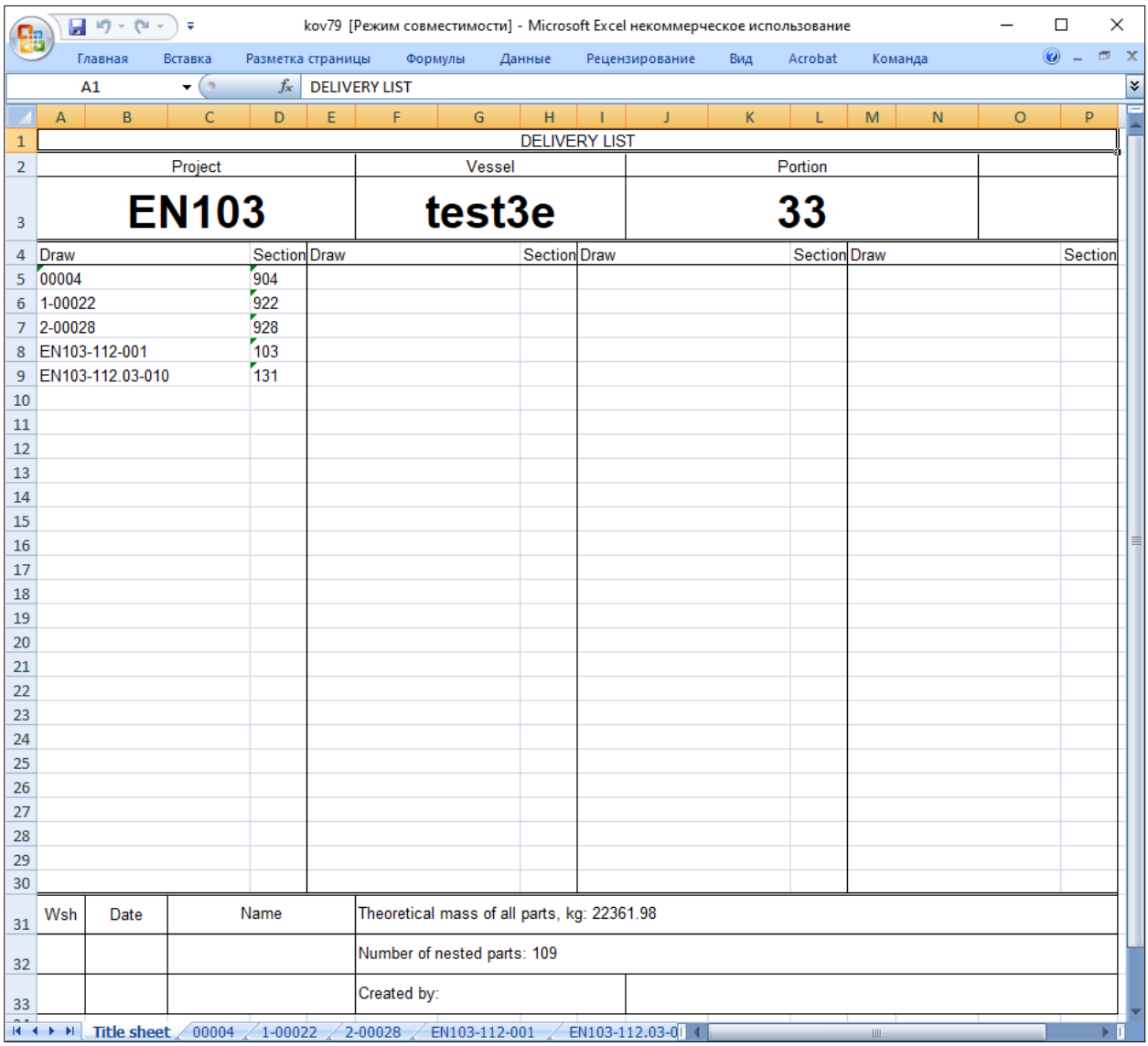
6.4. Delivery list

Delivery list contains part lists, by draws, with data of parts use in nesting maps, nodes, technological sets and albums. Button  of toolbar **Documents** serves for launching this calculation command.

Document is formed in Excel workbook file with title sheet and worksheets corresponding to draws of current order. The file name is kovN.xls, where N is a file number defined programmatically and not coinciding with number of any similar file (kov*.xls) in the folder *Doc*.

On dr. 88–90 there is a sample of created delivery list workbook.

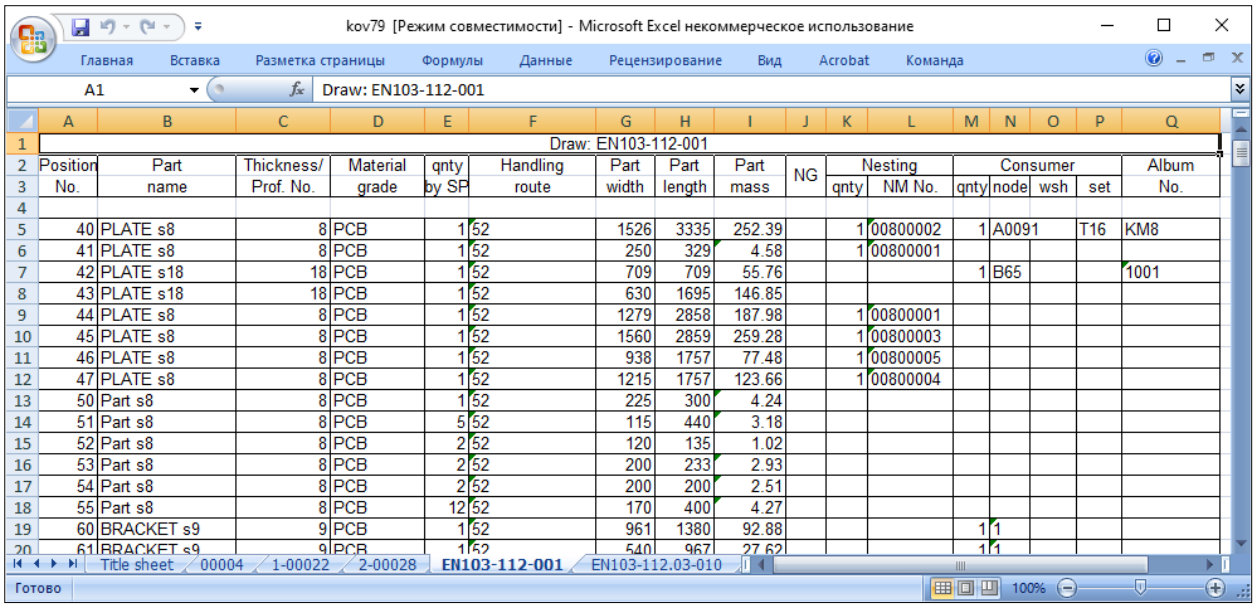
The title sheet (dr. 88) contains parameters of current order, list of draws, summary mass of order parts and number of nested parts.



Drawing 88. Title sheet of delivery list

The main information is concentrated in the worksheets for draws (sample is on dr. 89–90). Worksheets contain total parts mass for the draw, as well as number of nested parts and number of unnested parts.

Number of these worksheets is equal to the number of draws in the order. Draws that for some reason do not have parts are included too.



kov79 [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид Acrobat Команда

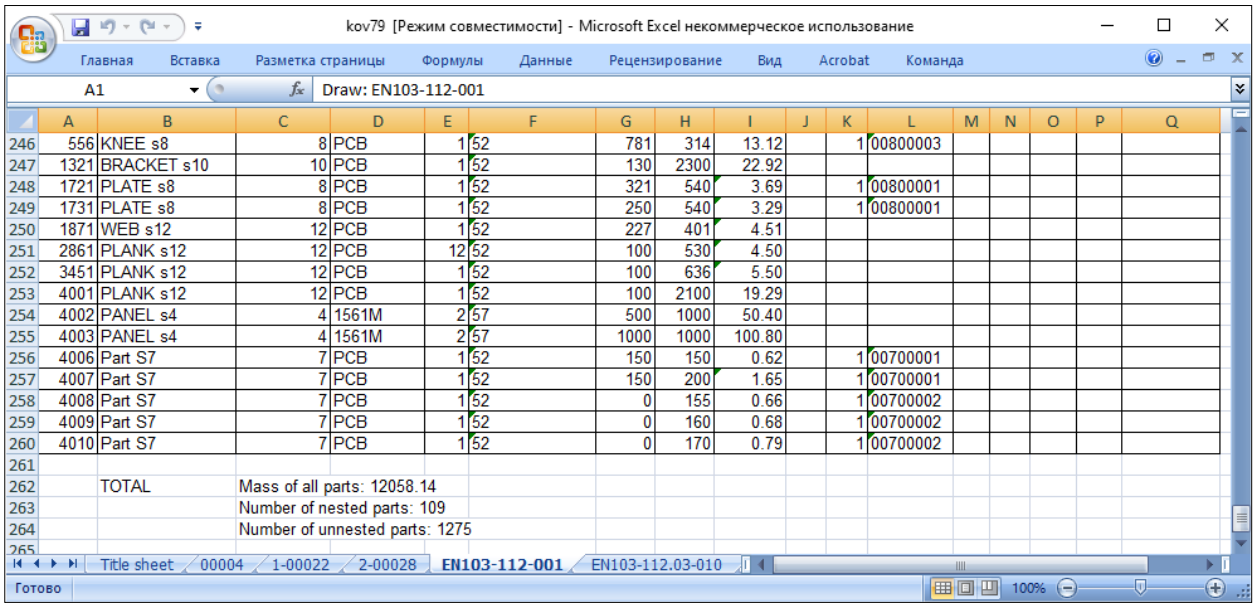
A1 Draw: EN103-112-001

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Draw: EN103-112-001																
2	Position	Part	Thickness/	Material	qnty	Handling	Part	Part	Part	NG	Nesting		Consumer				Album
3	No.	name	Prof. No.	grade	by SP	route	width	length	mass		qnty	NM No.	qnty	node	wsh	set	No.
4																	
5	40	PLATE s8	8	PCB	1	52	1526	3335	252.39		1	00800002	1	A0091		T16	KM8
6	41	PLATE s8	8	PCB	1	52	250	329	4.58		1	00800001					
7	42	PLATE s18	18	PCB	1	52	709	709	55.76				1	B65			1001
8	43	PLATE s18	18	PCB	1	52	630	1695	146.85								
9	44	PLATE s8	8	PCB	1	52	1279	2858	187.98		1	00800001					
10	45	PLATE s8	8	PCB	1	52	1560	2859	259.28		1	00800003					
11	46	PLATE s8	8	PCB	1	52	938	1757	77.48		1	00800005					
12	47	PLATE s8	8	PCB	1	52	1215	1757	123.66		1	00800004					
13	50	Part s8	8	PCB	1	52	225	300	4.24								
14	51	Part s8	8	PCB	5	52	115	440	3.18								
15	52	Part s8	8	PCB	2	52	120	135	1.02								
16	53	Part s8	8	PCB	2	52	200	233	2.93								
17	54	Part s8	8	PCB	2	52	200	200	2.51								
18	55	Part s8	8	PCB	12	52	170	400	4.27								
19	60	BRACKET s9	9	PCB	1	52	961	1380	92.88				1	1			
20	61	BRACKET s9	9	PCB	1	52	540	967	27.62				1	1			

Title sheet | 00004 | 1-00022 | 2-00028 | EN103-112-001 | EN103-112.03-010

Готово 100%

Drawing 89. Worksheet for draw EN103-112-001 (first lines)



kov79 [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид Acrobat Команда

A1 Draw: EN103-112-001

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
246	556	KNEE s8	8	PCB	1	52	781	314	13.12		1	00800003					
247	1321	BRACKET s10	10	PCB	1	52	130	2300	22.92								
248	1721	PLATE s8	8	PCB	1	52	321	540	3.69		1	00800001					
249	1731	PLATE s8	8	PCB	1	52	250	540	3.29		1	00800001					
250	1871	WEB s12	12	PCB	1	52	227	401	4.51								
251	2861	PLANK s12	12	PCB	12	52	100	530	4.50								
252	3451	PLANK s12	12	PCB	1	52	100	636	5.50								
253	4001	PLANK s12	12	PCB	1	52	100	2100	19.29								
254	4002	PANEL s4	4	1561M	2	57	500	1000	50.40								
255	4003	PANEL s4	4	1561M	2	57	1000	1000	100.80								
256	4006	Part S7	7	PCB	1	52	150	150	0.62		1	00700001					
257	4007	Part S7	7	PCB	1	52	150	200	1.65		1	00700001					
258	4008	Part S7	7	PCB	1	52	0	155	0.66		1	00700002					
259	4009	Part S7	7	PCB	1	52	0	160	0.68		1	00700002					
260	4010	Part S7	7	PCB	1	52	0	170	0.79		1	00700002					
261																	
262		TOTAL	Mass of all parts: 12058.14														
263			Number of nested parts: 109														
264			Number of unnested parts: 1275														
265																	

Title sheet | 00004 | 1-00022 | 2-00028 | EN103-112-001 | EN103-112.03-010

Готово 100%

Drawing 90. Worksheet for draw EN103-112-001 (last lines)

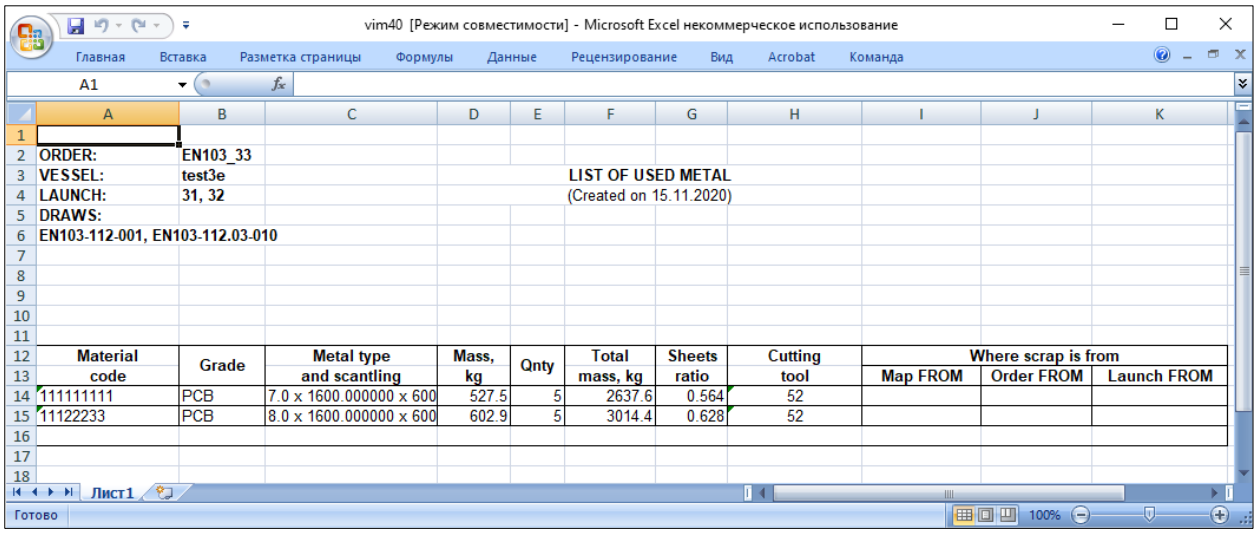
6.5. List of used metal

Document includes information on metal types used in current order. Metal types contain raw sheets applied for nesting maps. For each type there is material code (usually with 11 symbols), grade, thickness and dimensions, number of sheets, sheet ratio, mass of a sheet and total mass of all sheets of this type, cutting tool. Button  of toolbar **Documents** serves for launching command.

Document is formed in Excel workbook file with one sheet. The file name is

vimN.xls, where N is a file number defined programmatically and not coinciding with number of any similar file (vim*.xls) in the folder *Doc*.

On dr. 91 there is a sample document.



vim40 [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид Acrobat Команда

A1

ORDER:	EN103_33	
VESSEL:	test3e	LIST OF USED METAL
LAUNCH:	31, 32	(Created on 15.11.2020)
DRAWS:		
EN103-112-001, EN103-112.03-010		

Material code	Grade	Metal type and scantling	Mass, kg	Qnty	Total mass, kg	Sheets ratio	Cutting tool	Where scrap is from		
								Map FROM	Order FROM	Launch FROM
111111111	PCB	7.0 x 1600.000000 x 600	527.5	5	2637.6	0.564	52			
11122233	PCB	8.0 x 1600.000000 x 600	602.9	5	3014.4	0.628	52			

Лист1

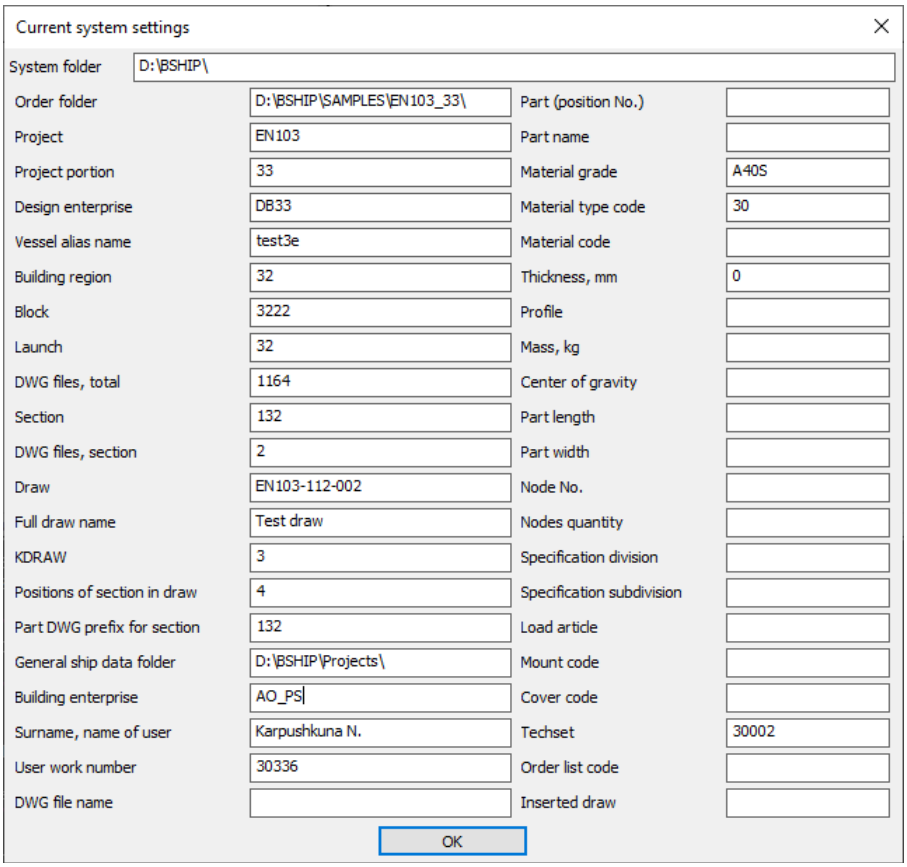
Готово 100%

Drawing 91. List of used metal types

7. OTHER COMMANDS

7.1. Command Current

Command **Current** (button [i]) allows to get all the current parameters and settings of **B-Ship** (current project, order, draw, section, block number, position number, customer work code, etc.), as well as specific summary data (dr. 92).



Current system settings

System folder	D:\BSHIP\		
Order folder	D:\BSHIP\SAMPLES\EN103_33\	Part (position No.)	
Project	EN103	Part name	
Project portion	33	Material grade	A40S
Design enterprise	DB33	Material type code	30
Vessel alias name	test3e	Material code	
Building region	32	Thickness, mm	0
Block	3222	Profile	
Launch	32	Mass, kg	
DWG files, total	1164	Center of gravity	
Section	132	Part length	
DWG files, section	2	Part width	
Draw	EN103-112-002	Node No.	
Full draw name	Test draw	Nodes quantity	
KDRAW	3	Specification division	
Positions of section in draw	4	Specification subdivision	
Part DWG prefix for section	132	Load article	
General ship data folder	D:\BSHIP\Projects\	Mount code	
Building enterprise	AO_PS	Cover code	
Surname, name of user	Karpushkuna N.	Techset	30002
User work number	30336	Order list code	
DWG file name		Inserted draw	

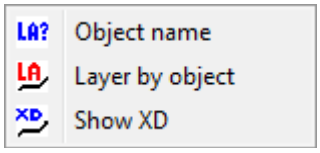
OK

Drawing 92. Window **Current system settings**

Parameters are output in the graphical kernel text screen too:
Current system settings...
System folder="D:\\BSHIP\\"
Order folder="D:\\BSHIP\\SAMPLES\\EN103_33\\"
Project="EN103"
Project portion="33"
Design enterprise="DB33"
Alias name="test3e"
Building region="32"
Block="3222"
Launch="32"
DWG files, total=1164
Section="132"
DWG files, section=2
Draw="EN103-112-002"
Full draw name="Test draw"
KDRAW="3"
Positions of section in draw=4
Paer DWG prefix for section="132"
General ship data folder="D:\\BSHIP\\Projects\\"
Building enterprise="AO_PS"
Surname, name of user="Karpushkina N."
User work number="30336"
Material grade="A40S"
Material type code="30"
Techset="30002" etc.

7.2. Commands of SET submenu

Submenu **SET** has the following structure (dr. 93):



Drawing 93. Submenu **SET**

Command **Object name** (button) displays layer (name) of selected entity. Command **Layer by object** (button) sets current layer by entity.

Command **Show XD** (button) is targeted to output into the command line parameters of selected entity icluding entity xdata, or extended data (may contain some technological info). Here is a sample with xdata of MTEXT with chamfer data:

Object 0: ((-1 . <Entity name: -139e38>) (0 . "MTEXT") (330 . < Entity name: -13b308>) (5 . "131") (100 . "AcDbEntity") (67 . 0) (410 . "Model") (8 . "FASKA") (62 . 7) (100 . "AcDbMText") (10 85.3083 285.974 0.0) (40 . 8.375) (41 . 0.0) (46 . 0.0) (71 . 7) (72 . 5) (1 . "\\A1;{\\H1.0x;\\SChback/6x40%%d;}") (7 . "Standard") (210 0.0 0.0 1.0) (11 1.0 0.0 0.0) (42 . 26.1719) (43 . 19.5417) (50 . 0.0) (73 . 1) (44 . 1.0) (-3 ("R_EdgeHandling" (1000 . "{0.000,500.000}{0.000,279.281}{0.000,0.000} Name ChamferFace Corner 40.0 Removal 6.0 LengthEdge 500.000 Concavity 0"))))

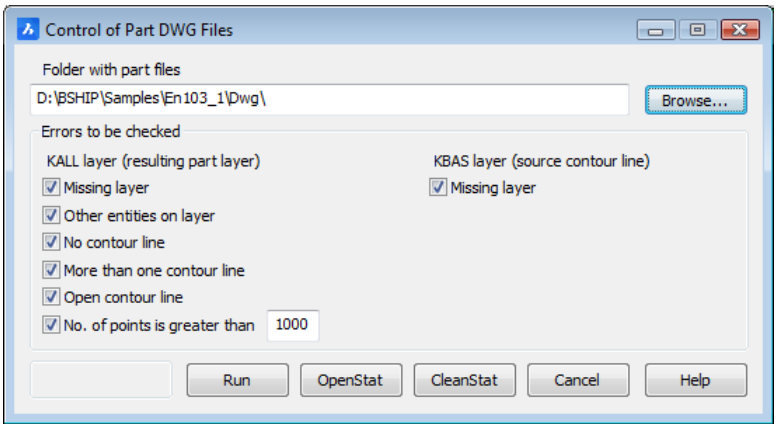
Other commands working with extended data are included in submenu **Object XD** of module **Part**.

7.3. Command PARTS AUDIT

Command **Parts audit** (button) allows audit (verification) of part DWG files by some formal features.

Attention! Command uses preinstalled AutoCAD program, in invisible mode. If AutoCAD is not installed then command cannot be used.

Command opens dialog box **Control of Part DWG Files** (dr. 94).

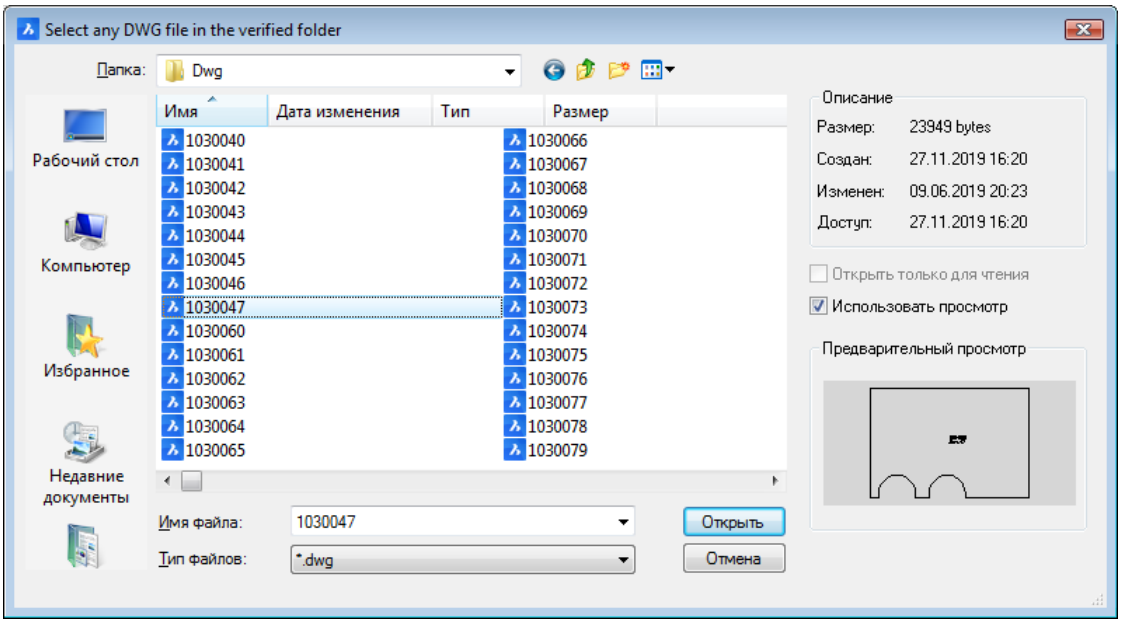


Drawing 94. Window **Control of Part DWG Files**

User must enter the path to folder with DWG files that will be verified and select verification options.

Controlling results are being written to file *statist.txt* located in the order folder (e.g. *D:\EN103_33*) if files are taken from subfolder *Dwg* (*D:\EN103_33\Dwg)* or directly in the folder with files if files are located outside order folders structure (e.g. *C:\Temp*). User is able to clean statistics file.

Path is entered in the text field **Folder with part files**. It is better to select folder clicking button **Browse** opening dialog box (dr. 95). Select any DWG file in the folder to be verified, this provides excluding folders with no DWG files.



Drawing 95. Window to select folder with part files to control

In controlling process application scans DWG files from the selected folder, one by one. This operation is executed without visualizing on screen that ensures to reduce significantly scanning time. But no verified file must not be opened in BricsCAD or other

graphical processors (those files are inaccessible for scanning and are skipped). During verification format of DWG files is being analyzed and in case of finding corrupted structure a message is generated. Moreover only files with format AutoCAD 2000 or greater are considered to be valid.

Verification options are being set by the user for the layers: KALL (resulting outer contour of the part) и KBAS (source outer contour of the part) with checkboxes in the dialog window (see dr. 93).

For KALL layer there are the following controlling options: **Missing layer**; **Other entities on layer**; **No contour line**; **More than one contour line**; **Open contour line**; **No. of points is greater than** N (for N only integer numbers are allowed, from 0 up to 9999; default value is 1000).

For KBAS layer there is only one option: **Missing layer**.

After setting full name of the folder and verification options user must start controlling operation with button **Run**. Number of the file being scanned in the current moment is displayed in the left lower corner of the window (see dr. 93).

There are other buttons in the lower area of the window:

OpenStat (opens in Notepad statistics file for the selected folder);

CleanStat (cleans statistics file for the verified folder);

Cancel (closes dialog box);

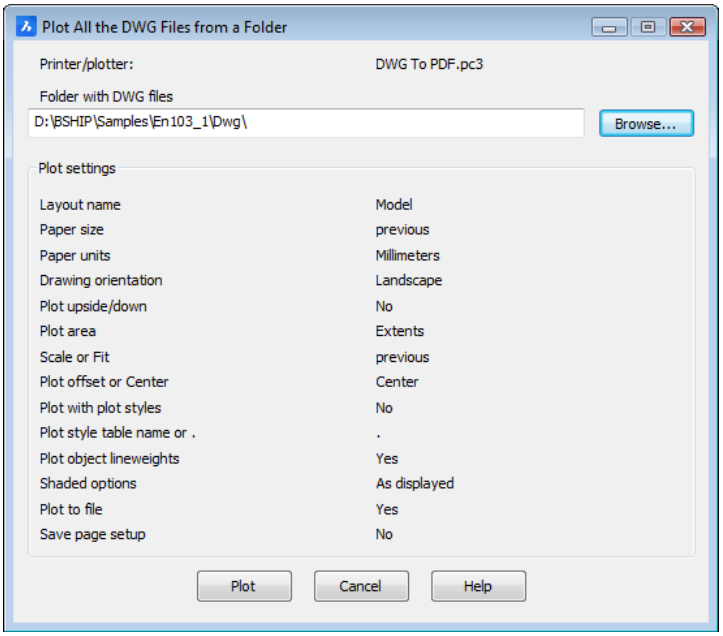
Help (opens help to command **Parts audit**).

Program remembers the last coordinates of the dialog box position and name of the last folder scanned with button **Run**.

7.4. Command PRINT DWGS FROM FOLDER

Operation **Print DWGs from folder** is implemented as submenu with two items: **to PDF** (button ) and **to system printer** (button ). It allows printing all the DWG files from the selected folder. There are two kinds of printing: to PDF files and to system printer.

Command of printing to PDF opens dialog box (dr. 96).



Drawing 96. Window **Plot All the DWG Files from a Folder**

In this window in the field **Folder with DWG files** there is necessary to enter full name of folder with DWG files to be printed. Path to folder can be set manually or with button **Browse** (second method is more preferable). If to click button **Browse** then dia-

log box will be opened and it will show the last folder that was selected for printing in the previous session. User must enter required folder, select any DWG file and press button **Open**.

All the parameters for printing to PDF, except two, are formed by default:
Layout name = Model;
Paper units = Millimeters;
Drawing orientation= Landscape;
Plot upside/down = No;
Plot area = Extents;
Plot offset or Center = Center;
Plot with plot styles = No;
Plot style table name or . = .;
Plot object lineweights = Yes;
Shaded options = As displayed;
Plot to file = Yes;
Save page setup = No.

Two parameters more are inherited from the previous plotting:
Paper size;
Scale or Fit.

Therefore for forming right values of these two parameters it is necessary before work with all the folder to print one file to PDF with setting manually required format and scale.

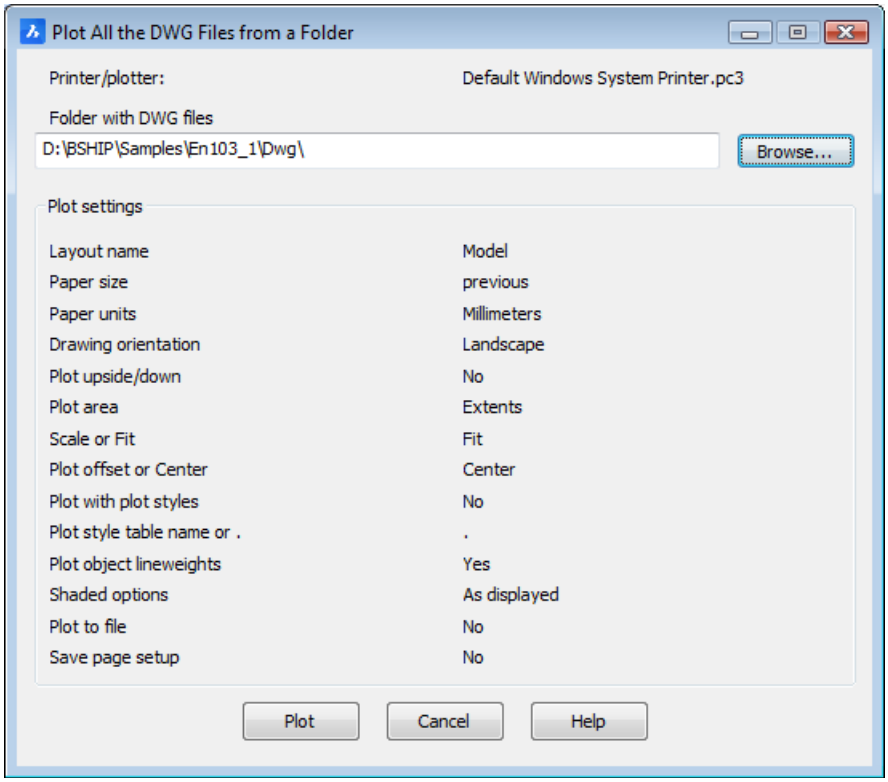
After pressing in the dialog box (see dr. 96) button **Plot** printing is being executed, with using printer registered in BricsCAD as *DWG To PDF.pc3*. Standard command –PLOT is called with parameters set in dialog box. Each DWG file is opened and being printed to a separate PDF file with a similar name like DWG has, and it is located in the same folder as DWG.

Attention! It is important that **no file** to be printed from the folder **must be opened in graphical editor or in other programs** – this will cause cancelling printing.

Command of printing to system printer opens other kind of dialog box **Plot All the DWG Files from a Folder** (dr. 97).

In this window in the field **Folder with DWG files** user must enter full name of folder with DWG files to be printed. Path to folder can be set manually or with button **Browse** (second method is better). If to press button **Browse** then dialog box will be opened and it will show the last folder that was selected for printing in the previous print session. User must enter required folder, select any DWG file and press button **Open**.

All the parameters for printing to system printer, except one, are formed by default:
Layout name = Model;
Paper units = Millimeters;
Drawing orientation= Landscape;
Plot upside/down = No;
Plot area = Extents;
Scale or Fit = Fit;
Plot offset or Center = Center;
Plot with plot styles = No;
Plot style table name or . = .;
Plot object lineweights = Yes;
Shaded options = As displayed;
Plot to file = No;
Save page setup = No.



Drawing 97. Window for printing to system printer

One parameter more (**Paper size**) is inherited from the previous plotting. Therefore for forming right value of this parameter it is necessary before work with all the folder to print one file to system printer with setting manually required format.

After pressing in the dialog box (see dr. 97) button **Plot** printing is being executed, with using printer registered in operating system as default printer *Default Windows System Printer.pc3*. Standard command –PLOT is called with parameters set in dialog box. Each DWG file is opened and being printed to system printer, one by one.

7.5. Other commands

Other commands call help system or command to load drop-down menus of system **B-Ship**.

It is recommended to load other menus with BricsCAD command MENULOAD or with menu item **BDATA > MENULOAD** (button M). Or use **B-Ship+** button in the status line for loading (reloading) menus of all the modules.