CAD/CAM System N-Ship+
Version 5.0

Module Bdata
Work with basic data

User manual

NSHIP.00014.005-2025

Sheets 125

Saint Petersburg
2025

ANNOTATION

The document is a reference manual for work with the module **Bdata** of the **N-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 **N-Ship+** system for the design and technological preparation of the ship hull production and have practical experience of using nanoCAD graphical system. **N-Ship+** is informationally compatible with the systems **Ritm-Ship** (AutoCAD), **R-Ship+** (AutoCAD), **B-Ship+** (BricsCAD).

Recommended operating systems are: Windows 8.1, Windows 10.

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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 **N-Ship+** will be named **N-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 project_port (project_portion) tables. General tables are located in the root folder of the system (usually *NSHIP*): dbf_stru.dbf, foxuser.dbf, interpol.dbf, metal_group.dbf, otxod.dbf, otxodpr.dbf, prf_crit.dbf, prkt_ckb.dbf. They are packed inside installation file, with default contents.

For scraps tables otxod.dbf (sheet), otxodpr.dbf (profile) there is an opportunity for specifying individual location path for the purpose of storing data of several projects (parameter *scrapsnano* in Windows registry).

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

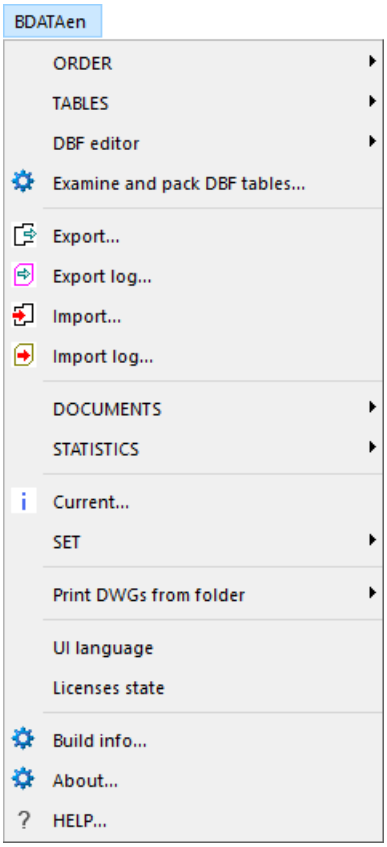
Project_port tables include the following files: alb_details.dbf, alboms.dbf, det_zak.dbf, draws.dbf, g_svmrsc.dbf, gabcentr.dbf, ids.dbf, klsmater.dbf, kodyoper.dbf, kr_list.dbf, modeli.dbf, parrezki.dbf, sign_par_object.dbf, specp.dbf, spr_gsr.dbf, teh_oper.bdf, users.dbf, vid_mat.dbf. While creating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

2. USER INTERFACE

2.1. Main menu

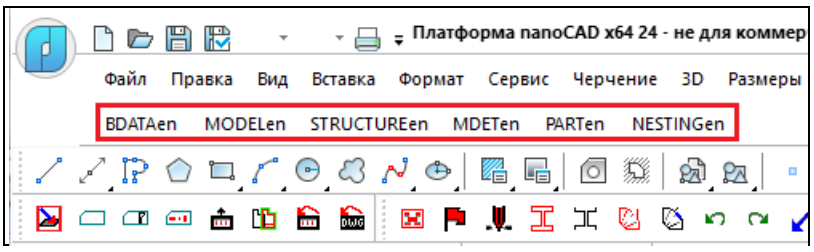
N-Ship system has drop-down (pull-down) menus containing commands of system modules. Ribbon is not used.

Module **Bdata** has a popup menu, which name consists of BDATA and two-symbols suffix denoting current localization language: en (English), ru (Russian), dr. 1. But for universality everywhere in the document **BDATA** name is used instead of **BDATAen**, **BDATAru**.



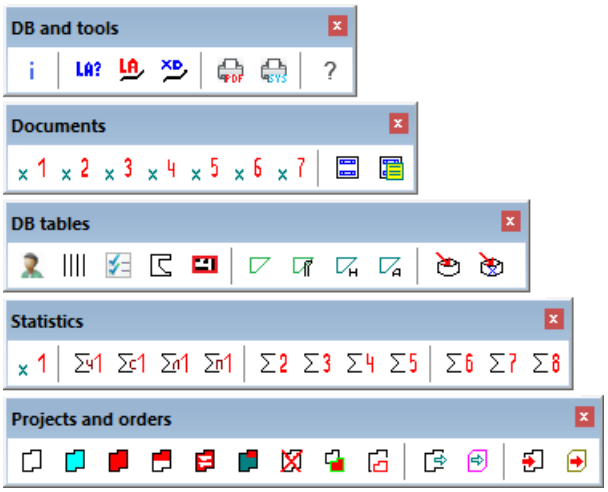
Drawing 1. Menu **BDATA**

Loading menu files procedure is explained in administrator manual (file NSHIP\Doc\N-Admin_en.pdf). On dr. 2 there is a nanoCAD menu line with English pull-down menus of N-Ship system.



Drawing 2. Loaded menus of N-Ship

Access to module program tools is realized not only from the popup menu **BDATA** but also from the toolbars **DB and tools**, **DB tables**, **Documents**, **Projects and orders**, **Statistics** (dr. 3).

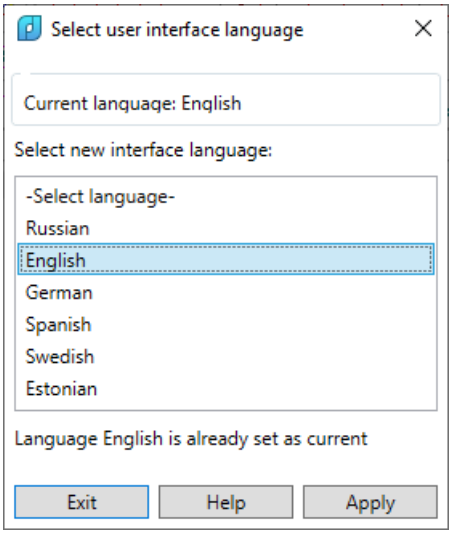


Drawing 3. Toolbars

2.2. Interface localization language

N-Ship system is distributed with various versions of interface language, and language can be changed during work process (but graphical kernel language of nanoCAD inside which **N-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. 4):



Drawing 4. 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 (pull-down) menu **BDATA**

(see dr. 1) and toolbars (see dr. 3). Menu comprises the following submenus and items:

- **ORDER** – submenu for operations with orders, projects, portions;
- **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 project_port 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 project_port;
- **Import protocol** – command for reading import protocol;
- **DOCUMENTS** — submenu for forming documents (lists, tables etc.);
- **STATISTICS** — submenu of statistic calculations;
- **Current** — output of current system settings (project #, etc.);
- **SET** — submenu for additional operations with geometrical model objects;
- **Print DWGs from folder** — submenu of printing operations for DWG files;
- **UI language** — command for changing interface language (English, Russian);
- **Licenses state** — 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 nanoCAD itself (localized version) can be entered in English or in localized mode. Similarly command options may be English or localized.

3. WORK WITH PROJECTS AND ORDERS

3.1. Commands of ORDER submenu

Order is connected to a project, database is divided into portions. *Project_port* (project portion) is the main information unit of **N-Ship**. Project_port 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. As portion can be taken launch or other ship part with single parts list and nesting maps.

Project_port is numbered by project name (up to 8 symbols, only digits and latin letters) and project portion (up to 3 digits) connected with underscore symbol, e.g.: BS103_41. Launch is often used as portion. Name (number) of *ship order* is entered in parameter vessel (alias) name.

Project_ports are registered in orders registry (table prkt_ckb.dbf). Actual work is being run only with a single project_port that is marked as active (current). There is an opportunity to

hide those project_ports that are not required now in real work.

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

Each project_port 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 project_port and for auxiliary files (with extensions *cdx*, *fpt* etc.);

Dwg — for DWG files with geometry of project_port parts;

Karty — for DWG and SLD files of project_port 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;

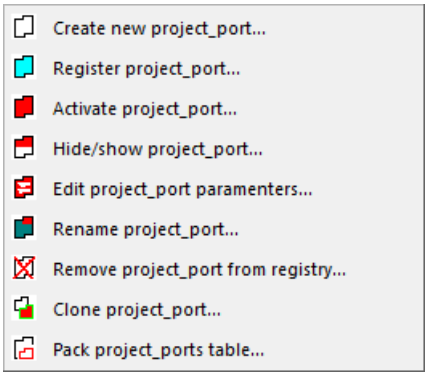
Solids — for DWG files of solid representation for parts;

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 project_port, storing some settings files.

In submenu **ORDER** there are items for operations with project_ports (dr. 5):

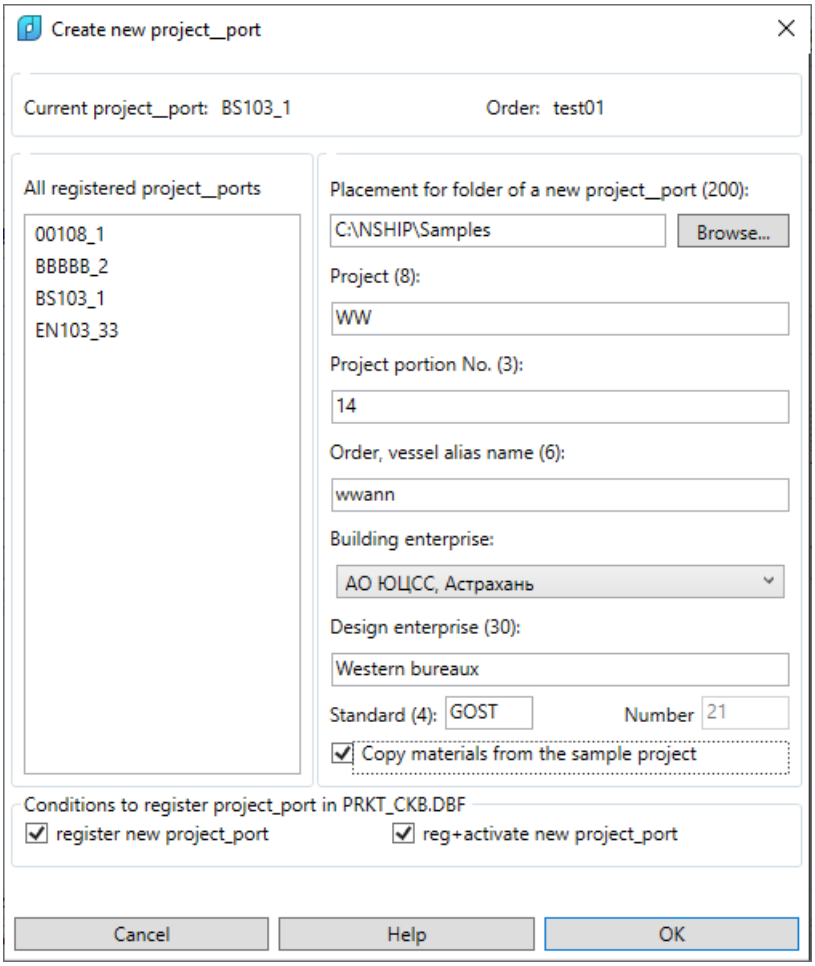


Drawing 5. Submenu **ORDER**

Commands of the submenu **ORDER** also can be accessed from the toolbar **Projects and orders**.

3.2. Create new project_port

Use menu item **Create new project_port** and button  to create a project_port and its folders. The command opens dialog box **Create new project_port** (dr. 6).



Drawing 6. Dialog box **Create new project_port**

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

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

Project_port needs seven parameters to be filled:

Placement for folder of a new project_port (200),

Project (8),

Project portion No. (3),

Order, vessel alias name (6),

Building enterprise,

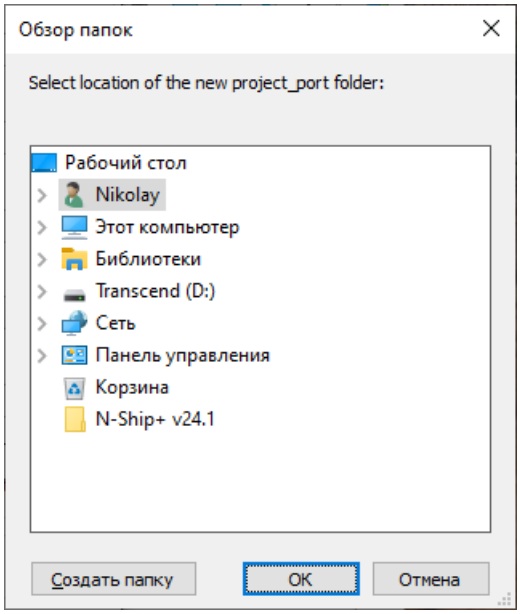
Design enterprise (30),

Standard (4).

Numbers in brackets indicate maximal allowed 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 NSHIP\Plants_settings\plants.dbf.

Real path to project_port folder is formed by connecting the path from **Placement for folder of a new project_port** (e.g. E:\new) and folder name of type <project>_<portion> (e.g. 3290_192): **E:\new\3290_192**. While filling **Placement for folder of a new project_port** it is recommended to use button **Browse** that calls auxiliary window for folder selection (dr. 7).



Drawing 7. 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 project_port then messages are written to the info line over the buttons **OK**, **Cancel** and **Help** (see dr. 6). 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 project_port tables created in folder E:\new\3290_192\DBF.

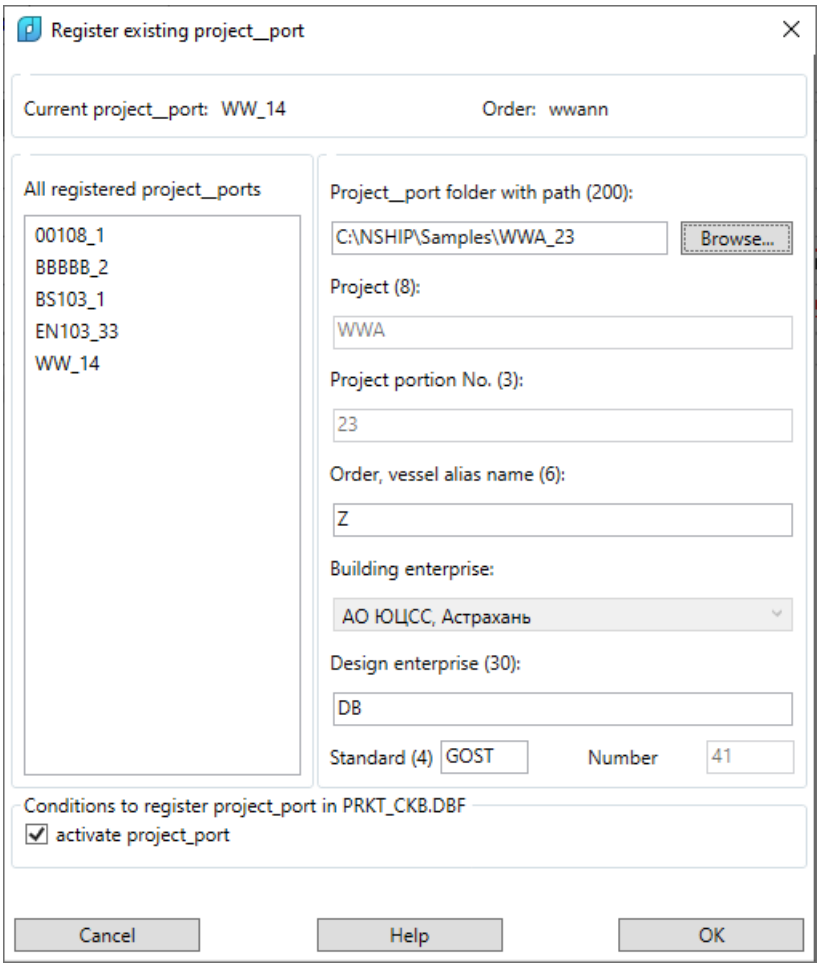
Project_port 3290_192 has been registered and has become visible.

Project_port 3290_192 has been activated.

3.3. Register project_port

Earlier created but unregistered or deleted project_port can be registered with menu command **Register project_port** and with button . Command opens dialog box **Register**

existing project_port (dr. 8).



Drawing 8. Dialog box **Register existing project_port**

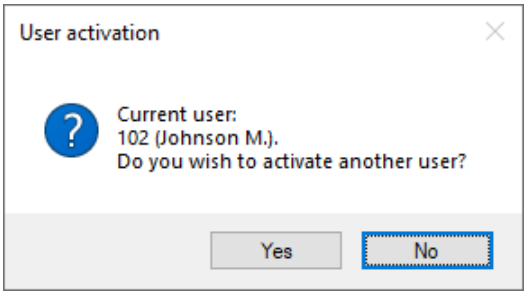
In the right part user must enter a valid parameter **Project_port folder with path (200)** including project number and portion numer of the existing but unregistered project_port. For better management the left part of the window displays alphabetically ordered list all the registered project_ports, including hidden.

It is recommended to do it with the button **Browse**. The order to be registered can be activated at once (set checkbox **activate project_port**).

At the end of registrating project_port there is a request to activate another user (dr. 9).

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

Reply **No** leaves shown user active.



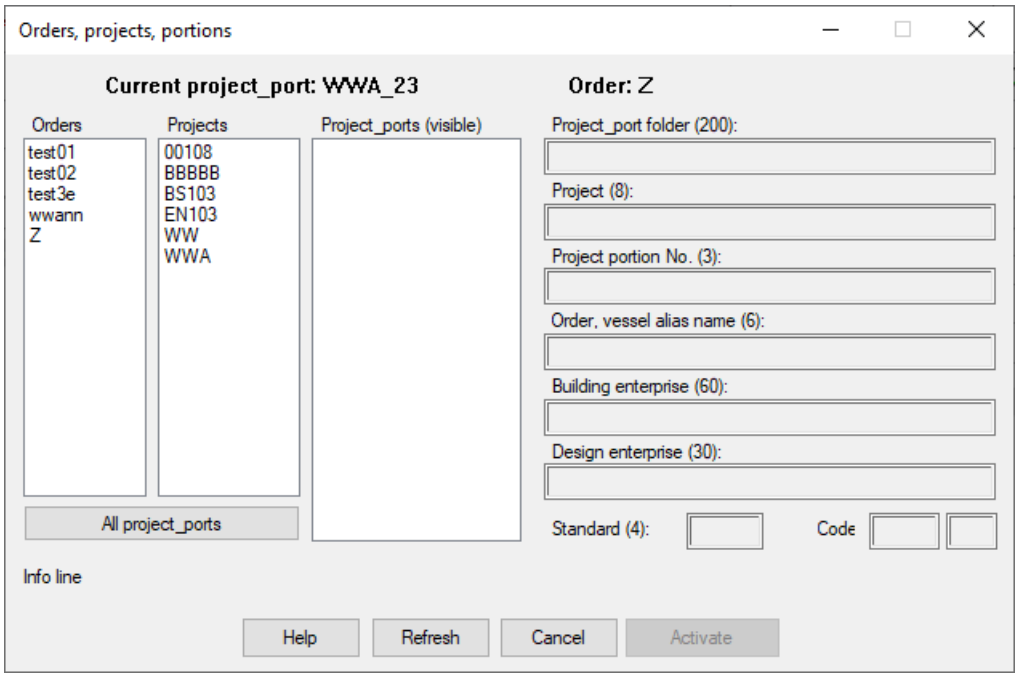
Drawing 9. Request for another user activation

3.4. Activate project_port

Earlier created and visible registered project_port can be activated with **Activate project_port** item and button .

Note. See p.3.5 to change project_port visibility. Hiding project_ports is useful if there are many members in the orders registry.

Activation command opens dialog box **Orders, projects, portions** (dr. 10). In the start state the **Activate** button is disabled.

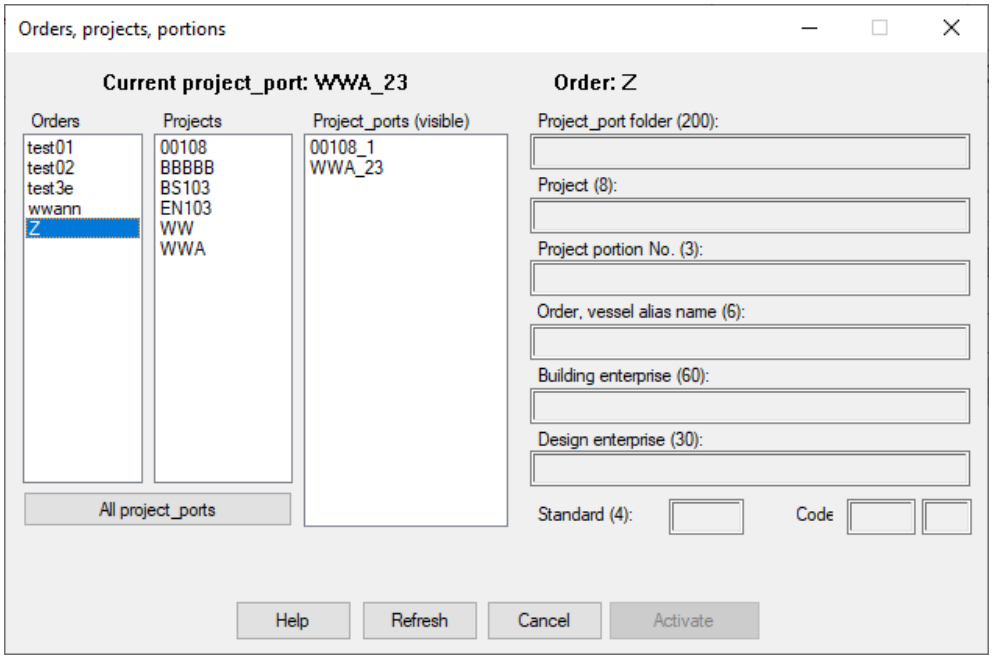


Drawing 10. Dialog box **Orders, projects, portions**

Upper zone of the window shows current project_port name and order name given in its parameters. List **Orders** shows names of all orders, and list **Projects** – all the project names from orders registry prkt_ckb.dbf (including hidden).

Note. Order name depends on keyboard register therefore forss and FORSS are considered as different.

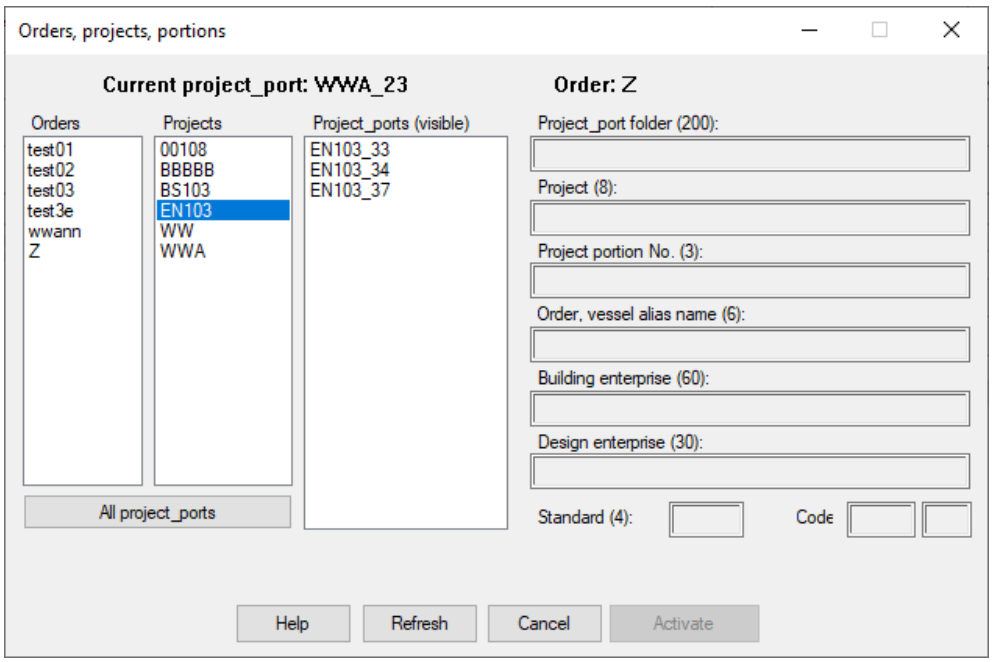
Activation of project_port is possible by order or by project. To activate by order one must select order name in list **Orders** (order must belong to required project_port, e.g. **Z**). After that list **Project_ports (visible)** will show those project_ports that are visible (not hidden) and have selected order name (dr. 11).



Drawing 11. List of project_ports for selected order

If project_port belongs to the same order but is invisible then it will not be shown. With the button **All project_ports** user can display all project_ports for all orders.

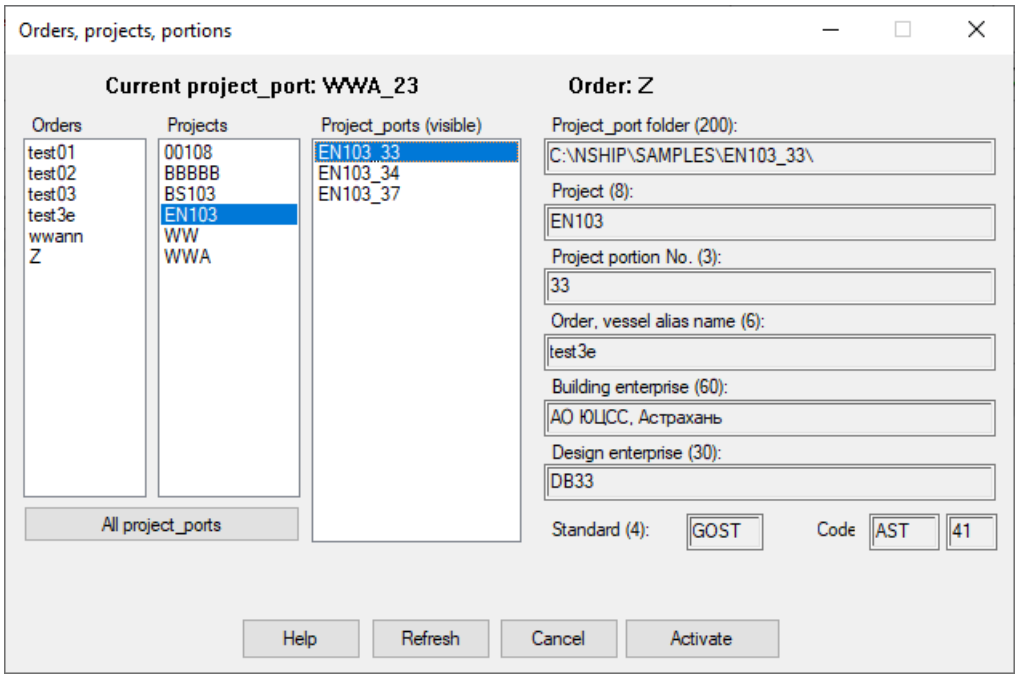
For activation by project name it is necessary to select project in the list **Projects** (e.g., **EN103**). After that list **Project_ports (visible)** will be filled with unhidden (visible) connected to selected project (dr. 12).



Drawing 12. List of project_ports for selected project

Next selection of any element in the list **Project_ports (visible)** (it should not be current, displayed in the upper zone of window) will automatically fill parameters of selected project_port in the right: **Project_port folder (200)**, **Project (8)**, **Project_port No. (3)**, **Order, vessel alias name (6)**, **Building enterprise (60)**, **Design enterprise (30)**, **Standard (4)**, **Code** of documen-

tation forms and internal number of plant (dr. 13). If number of plant has come from extern order and is missing int table plants.dbf, then field **Building enterprise** will be filled with several minuses.



Drawing 13. Parameters of selected project_port

Note. If list **Project_ports (visible)** is empty, then all the projects of marked project were deleted or hidden.

After selection of project_port button **Activate** becomes enabled. User must press it. Like while registration program will offer to select active user or agree with the first user suggested by default.

Result of activation will be shown in the command line of the graphical editor (*Project_port <...> activated.* or *Project_port not activated*).

Attention! Window **Orders, projects, portions** 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 project_ports (e.g. with the **Projects and orders** toolbar). Therefore to see the valid contents of orders and projects lists 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).

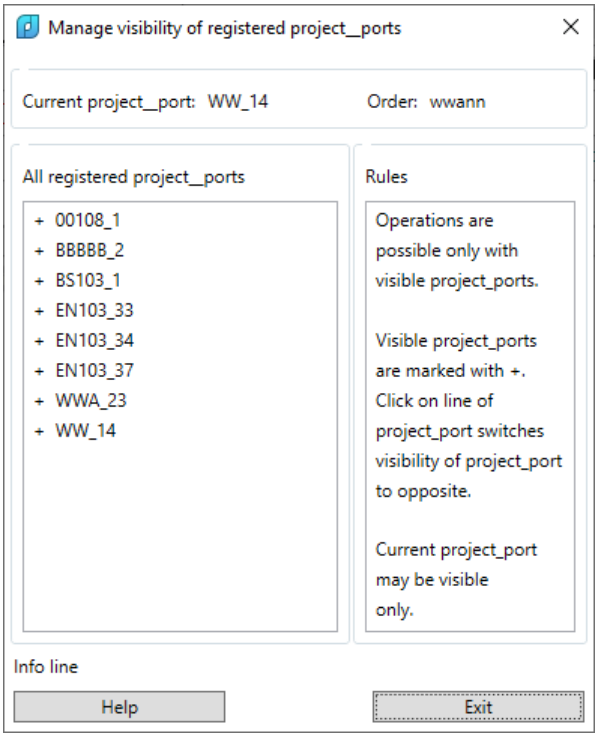
If without window refreshment user will try to activate a project_port that has been already removed or hidden then the user will get a message in the info line:

Project_port is hidden or deleted.

3.5. Manage project_port visibilty

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

For project_port that is hidden no operations (activating, deleting, renaming etc.) can be done up to the moment when the project_port will change its status to visible. To hide project_port or to return visibility to it use menu item **Hide/show project_port** and button . The command opens dialog box **Manage visibility of registered project_ports** (dr. 14).



Drawing 14. Dialog box **Manage visibility of registered project_ports**

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

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

Attention! Current project_port cannot be hidden.

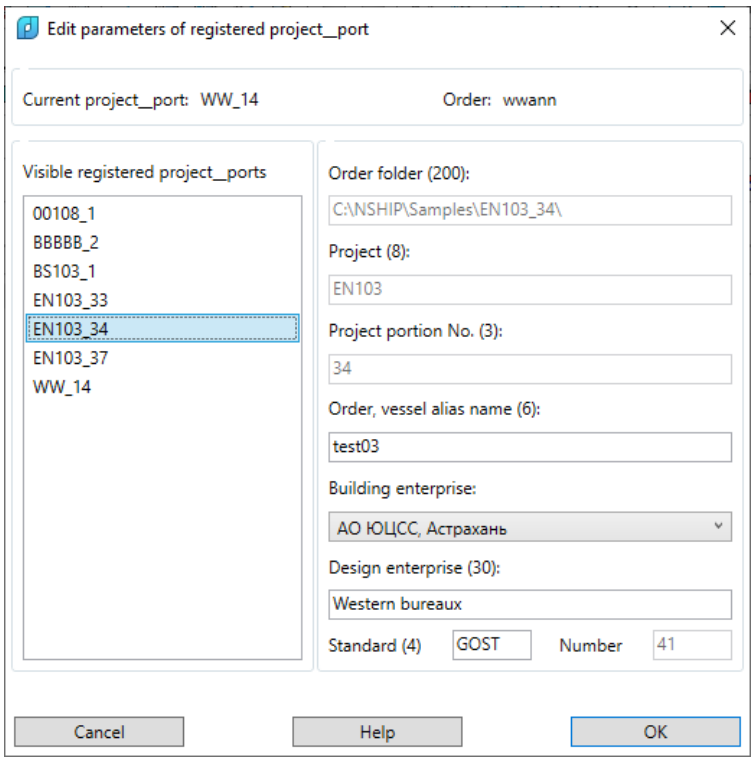
3.6. Edit project_port parameters

Parameters of registered, visible and inactive (non-current) project_port can be edited with the item **Edit project_port parameters** and with button . Command opens dialog box **Edit parameters of registered project_port** (dr. 15).

User must select project_port 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 project_port operation.

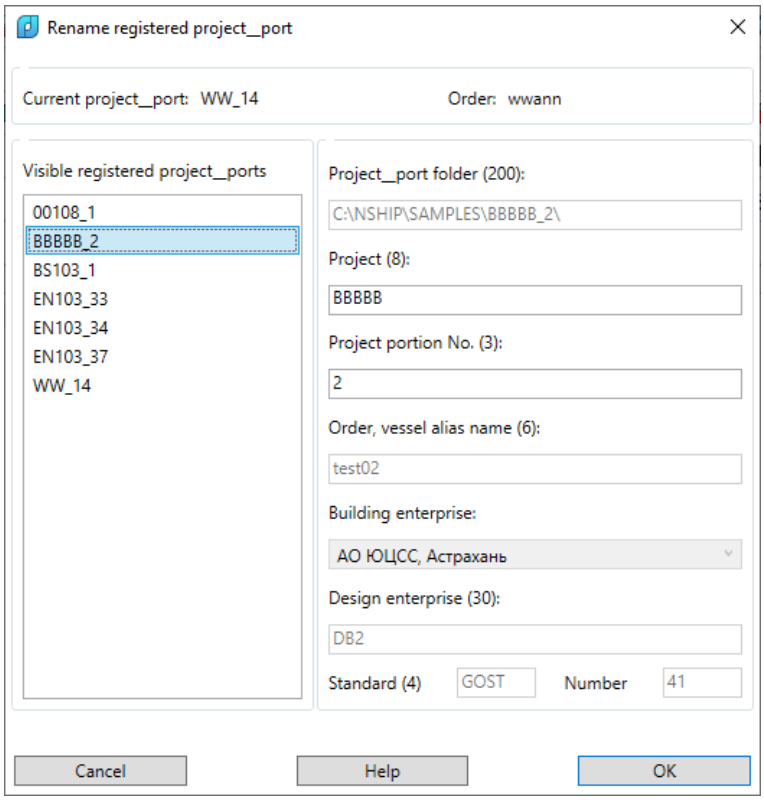
Attention! User is not able to edit parameters of the current project_port.



Drawing 15. Dialog box **Edit parameters of registered project_port**

3.7. Rename project_port

Registered, visible and inactive project_port can be renamed with the item **Rename project_port** and button  . Command opens dialog box **Rename registered project_ports** (dr. 16).



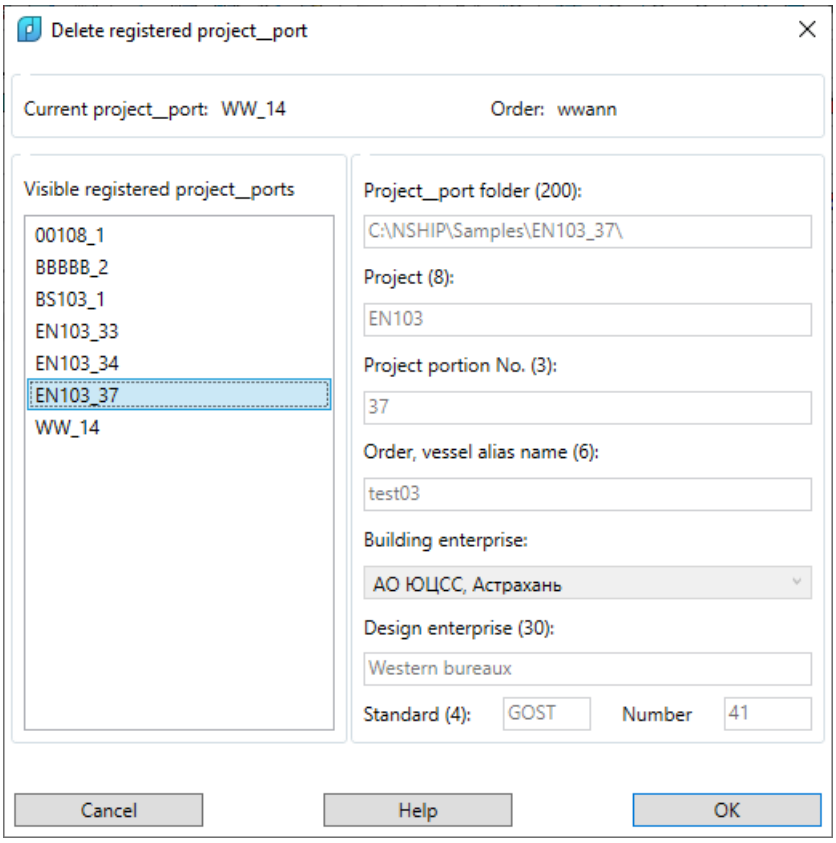
Drawing 16. Dialog box **Rename registered project_ports**

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

Attention! Program does not replace name of project_port in other tables of DB (scraps, nesting maps, technological parameters, etc.). Renaming current project_port is forbidden.

3.8. Delete project_port from registry

Registered, visible and inactive project_port can be removed from the orders registry with menu item **Remove project_port from the registry** and with button  . Command opens dialog box **Delete registered project_port** (dr. 17).



Drawing 17. Dialog box **Delete registered project_port**

In the left part user must select the project_port to be removed from the orders registry. Press **OK**. There is a request requiring positive answer: *Do you confirm deleting project_port … from PRKT_CKB.DBF?*

Project_port to be removed in fact becomes unregistered. Folder of the project_port is not deleted.

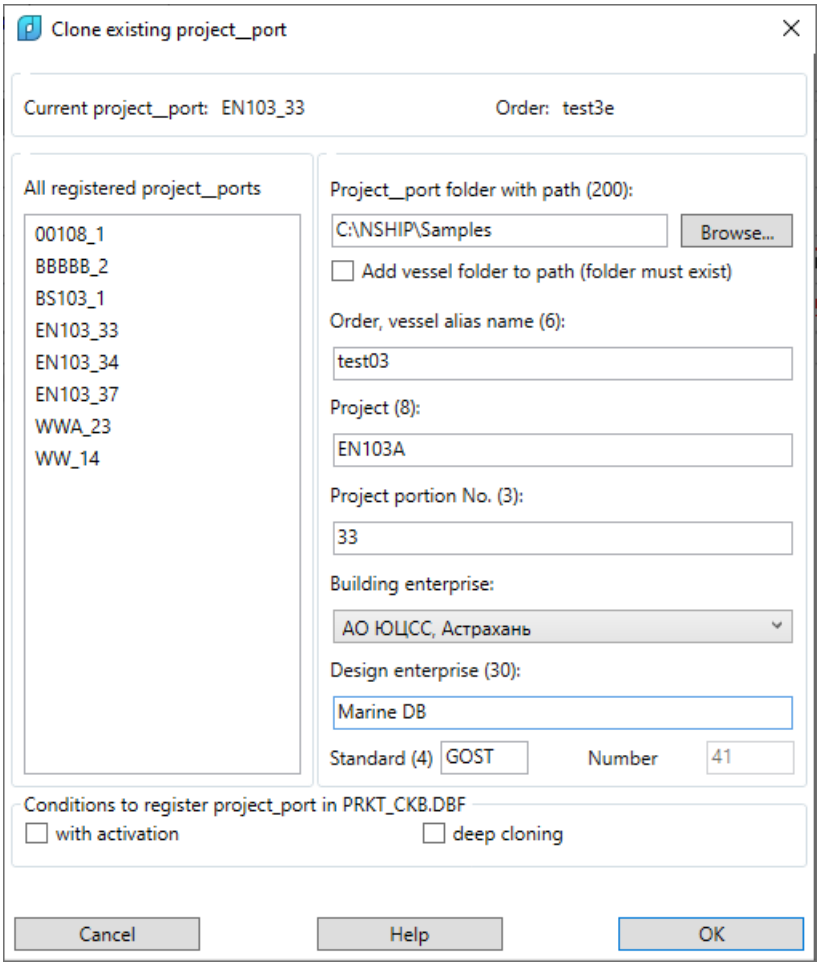
Attention! Current project_port cannot be deleted.

3.9. Clone project_port

The purpose of command is to copy folders and files of current project_port to a new project_port that will be created with some changes of attributes: location folder, project name,

project portion number, order name. To start command use menu item **ORDER > Clone project_port** or button .

Project_port to be cloned must be current. Command opens window **Clone existing project_port** (dr. 18).



Drawing 18. Dialog box **Clone existing project_port**

This window looks like the window of creating new project_port but has some differences.

New project_port must get new values at least in one of the following parameters: **Order, vessel alias name (6)**, **Project (8)**, **Project portion No. (3)**. Besides project_port to be created must not present in the list **All registered project_ports**.

If box **Add vessel folder to path (folder must exist)** is checked, then value of the field **Order, vessel alias name** at once will be added to the end of path set in **Project_port folder with path (200)**. It may be useful if in folders archive order name has priority.

Checkbox **deep cloning** should be set if is necessary not to copy full DBF tables but copy record by record (similar to packing new table). If box is unchecked then DBF files are copied entirely, this is quicker.

Note. Before immediate copying data the current project_port structure is analyzed in comparison with new project_port structure (it satisfyes to current state of the system and may

include new columns and widened old columns). If program detected that cloned project_port some table has old structure then it is copied record-by-record (deep cloning is applied).

As a result of command execution all the tables of the folder *DBF* are copied as well as all the files of other folders excluding *IDX*, *IDX2000*. Here is sample output in command line:

C:\NSHIP\Samples\BS104_50\DBF C:\NSHIP\Samples\BS104_50\DOC C:\NSHIP\Samples\BS104_50\DWG C:\NSHIP\Samples\BS104_50\IDX C:\NSHIP\Samples\BS104_50\IDX2000 C:\NSHIP\Samples\BS104_50\KARTY C:\NSHIP\Samples\BS104_50\MODEL C:\NSHIP\Samples\BS104_50\PL C:\NSHIP\Samples\BS104_50\POLKA C:\NSHIP\Samples\BS104_50\SHABLON C:\NSHIP\Samples\BS104_50\SOLIDS C:\NSHIP\Samples\BS104_50\TNK C:\NSHIP\Samples\BS104_50\TNK_KRT C:\NSHIP\Samples\BS104_50\USERS
klsmater
Structure differences of table klsmater.dbf:
old=(("NAME_DWG" "C1") ("OGR_SPISOK" "C1") ("TVM" "N1.0") ("MATKOD" "C11") ("KVIDMAT" "N2.0") ("MARKA" "C25") ("NOM_PROF" "C11") ("HH" "N7.2") ("BB" "N7.1") ("SS" "N7.1") ("LL" "N7.1") ("UDELN_VES" "N8.3") ("AREA" "N7.2") ("XCS" "N7.2") ("YCS" "N7.2") ("P1" "N7.2") ("P2" "N7.2") ("P3" "N7.2") ("P4" "N7.2") ("H1" "N7.2") ("H2" "N7.2") ("GOSTMAT" "C16") ("GOSTSRTM" "C16") ("TRU_OCHIST" "N5.3") ("TRU_PRAVKI" "N5.3"))
new=(("NAME_DWG" "C1") ("OGR_SPISOK" "C1") ("TVM" "N1.0") ("MATKOD" "C11") ("KVIDMAT" "N2.0") ("MARKA" "C25") ("NOM_PROF" "C11") ("HH" "N7.2") ("BB" "N7.1") ("SS" "N7.1") ("LL" "N7.1") ("UDELN_VES" "N8.3") ("AREA" "N7.2") ("XCS" "N7.2") ("YCS" "N7.2") ("P1" "N7.2") ("P2" "N7.2") ("P3" "N7.2") ("P4" "N7.2") ("H1" "N7.2") ("H2" "N7.2") ("GOSTMAT" "C16") ("GOSTSRTM" "C16") ("TRU_OCHIST" "N5.3") ("TRU_PRAVKI" "N5.3") ("SP" "N7.1") ("BB1" "N7.1") ("SP1" "N7.1"))
total 61
DOC: 63
DWG: 1157
KARTY: 72
MODEL: 5
PL: 30
POLKA: 24
SHABLON: 0
SOLIDS: 0
TNK: 14
TNK_KRT: 2
USERS\141408: 1
USERS\30056: 1
USERS\30336: 1

USERS\7094: 1

Changed PROEKT in kr_list.dbf.

Project_port BS104_50 has been registered and has become visible.

In the example it is seen that table klsmater.dbf changed its structure (new columns SP, BB1, SP1, required for Z profiles). For folders *DOC*, *DWG*, …, *USERS\7094* there is given number of copied files.

Created project_port is registered at once in the table prkt_ckb.dbf. But is activated only if box **with activation** is checked.

Note. Copying scraps is not done because of task complexity (nested, unnested scraps, accepted from other orders, etc.).

3.10. Pack project_ports registry

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

Note. Packing other DB tables is done by command **BDATA > Examine and pack DBF tables**.

3.11. Export and import of project_ports

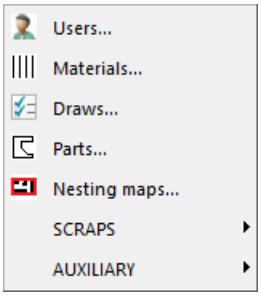
System provides opportunity to copy project_port or its fragment into another project_port. Copying can be applied to records of the DB tables (*.dbf) and to the objects saved apart from DB (*.dwg, *.sld, etc.).

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**

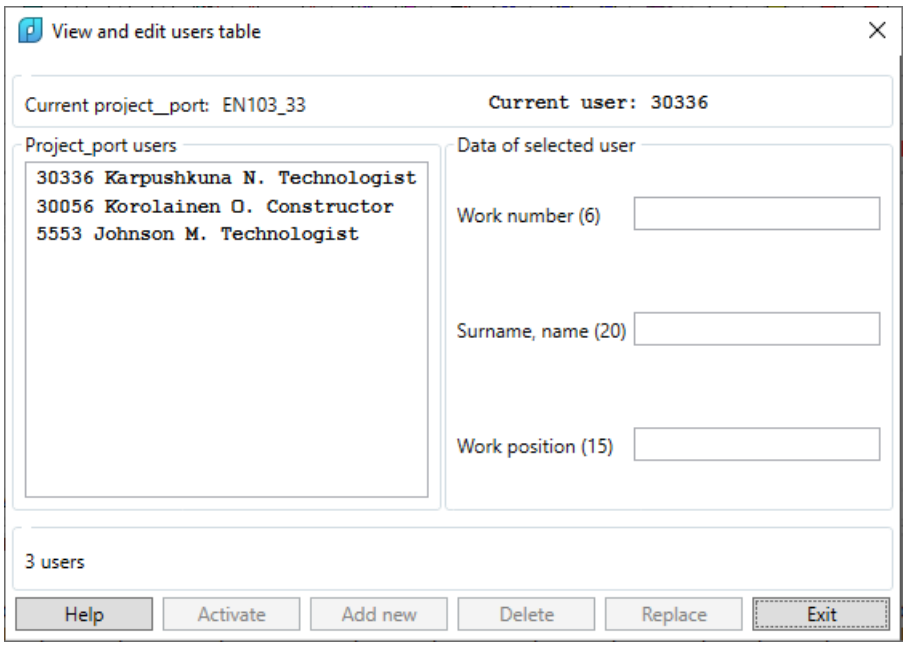
There are five items using for work with current project_port tables. Table files (except scraps) reside in subfolder *DBF* inside project_port folder, e.g.: *D:\NSHIP\Samples*

BS103_1\DBF. Submenu **SCRAPS** contains items for work with tables of sheet and profile scraps. Submenu **AUXILIARY** is used for viewing other tables, without opportunity for editing (for administrator needs).

Commands of the **TABLES** submenu are accessible from the toolbar **Tables** too.

4.2. Users

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



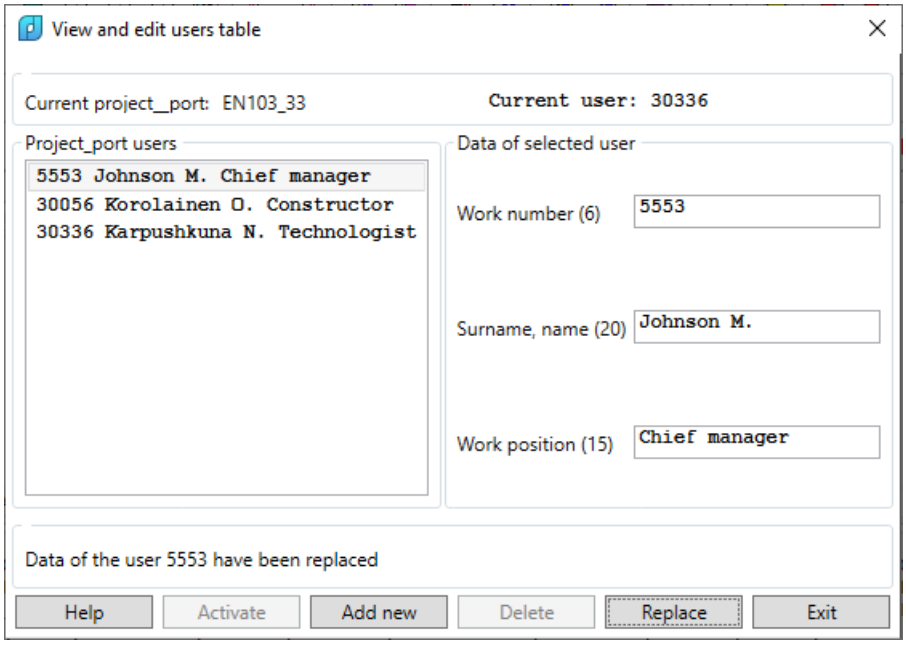
Drawing 20. Dialog box **View and edit users table**

The upper part of the window displays current project_port 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 project_port is shown in the listbox **Project_port users** sorted by work numbers.

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 **Project_port 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).

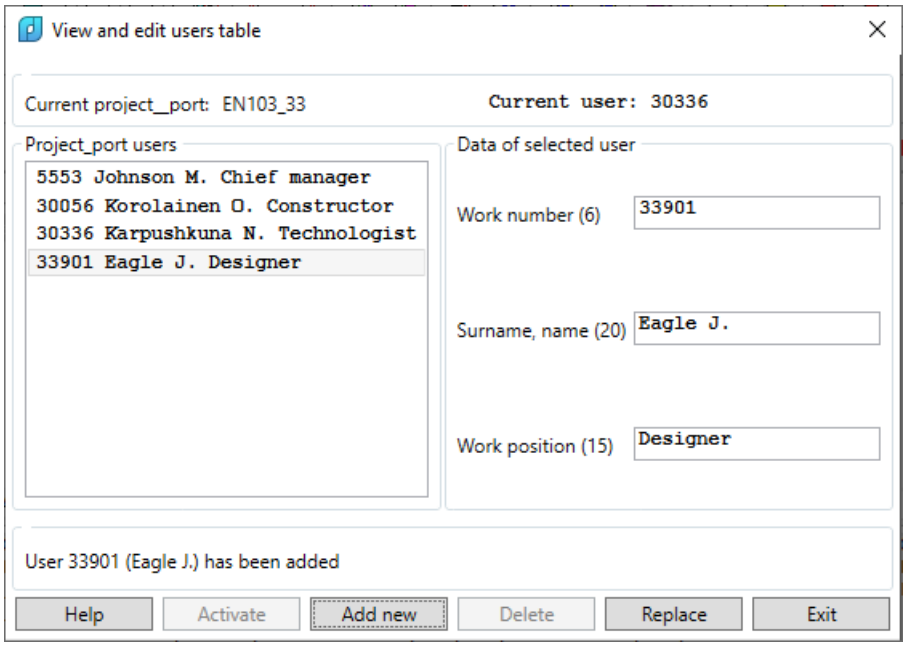
For editing user's features one must select him in the left part and change any parameter in the right part, move cursor to other feature field and after that press button **Replace**. Program will make replacement and output corresponding message into info line (dr. 21).



Drawing 21. Replacing user features

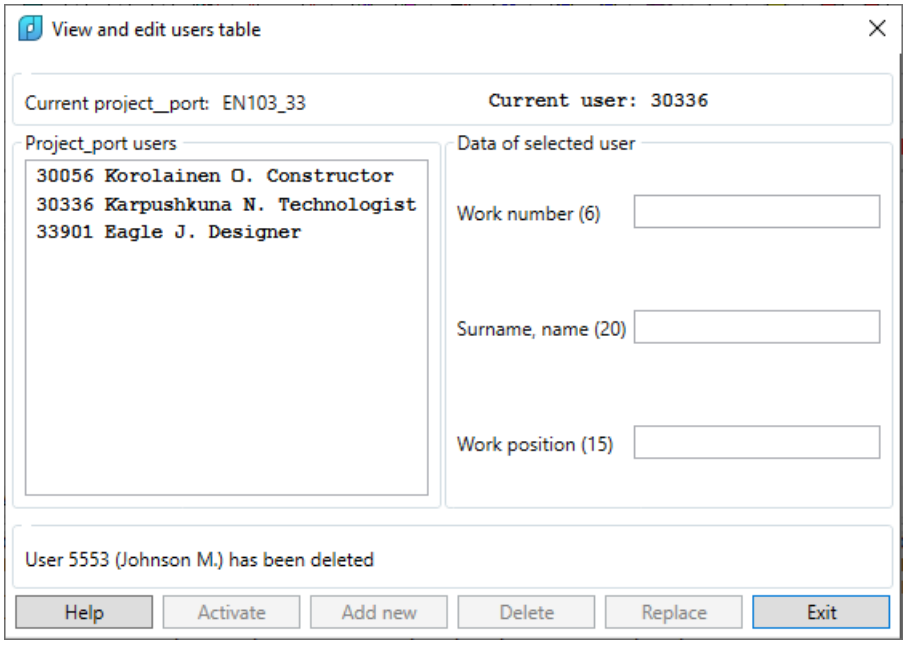
Parameter **Work number (6)** has a key importance, it must be unique inside the current project_port. While changing data of existing user his work number **must not coincide** with the number of any other earlier registered user (front and back spaces will be excluded). Moreover data of the active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

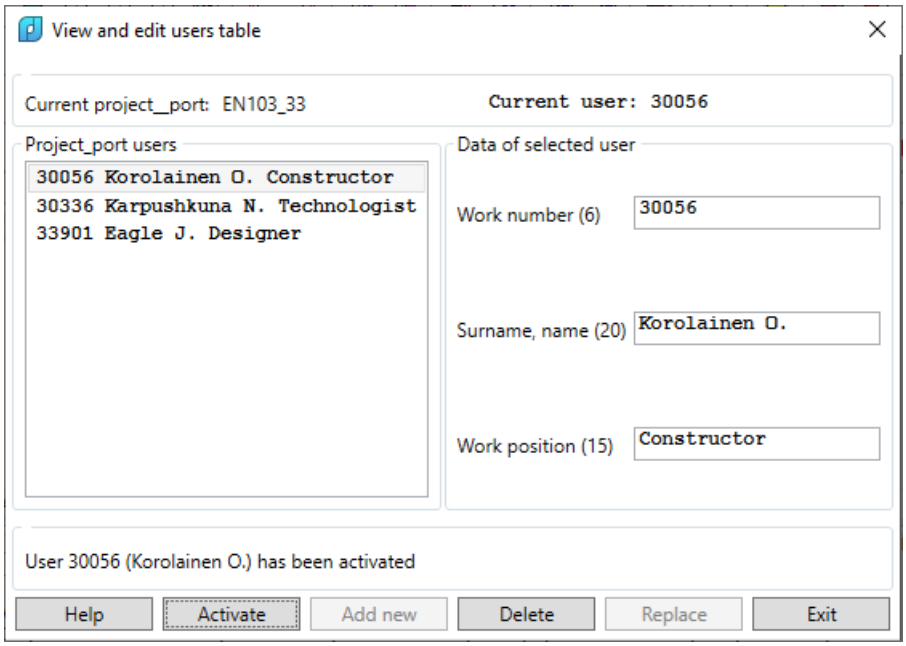
On the dr. 23 there is a sample of window state after deleting a user from the left area (with **Delete** button).



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 **Project_port 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.



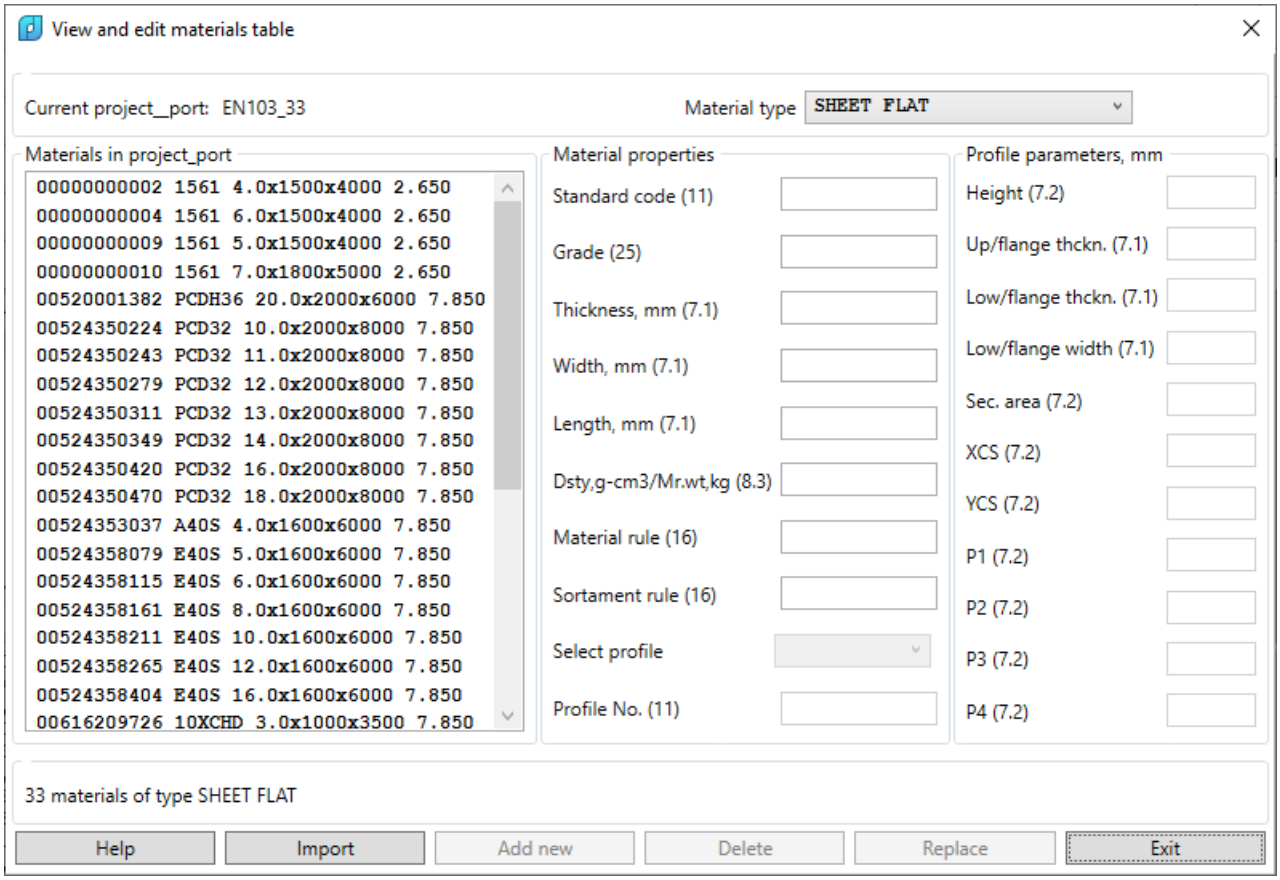
Drawing 24. Activating user

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).

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).

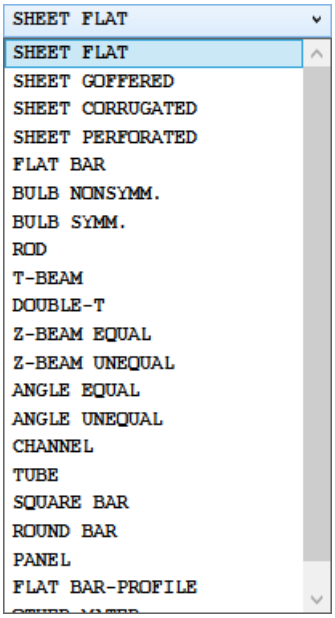


Drawing 25. Dialog box **View and edit materials table** (material type **SHEET FLAT**)

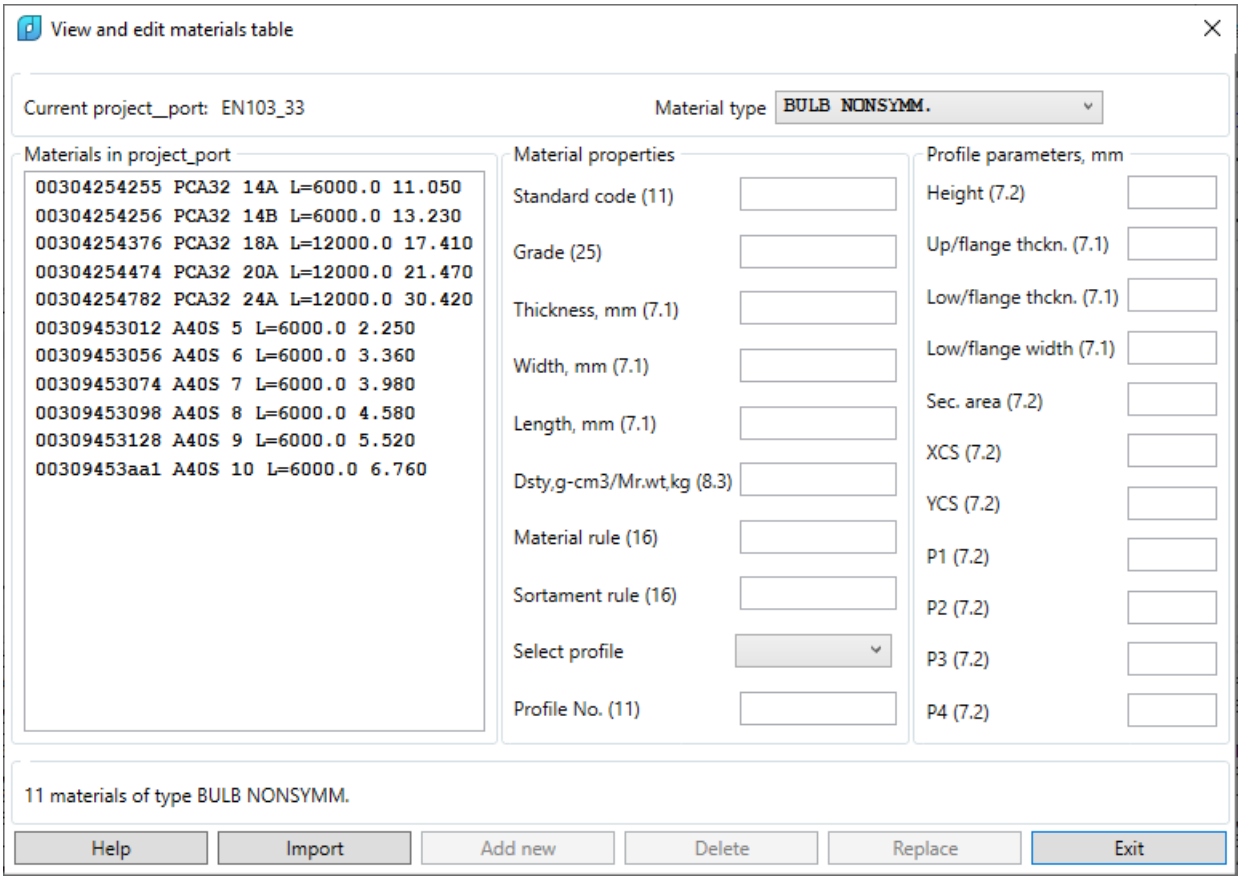
After initial load drop-down list **Material type** shows default **SHEET FLAT** and into the left listbox materials of this type are included. In the upper part of the dialog current order name is displayed (in the form of *project_portion*).

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

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



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

List **Materials in project_port** 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 PCD32 13x2000x8000 7.85 (11-symbols code, material grade, thick-

ness 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:

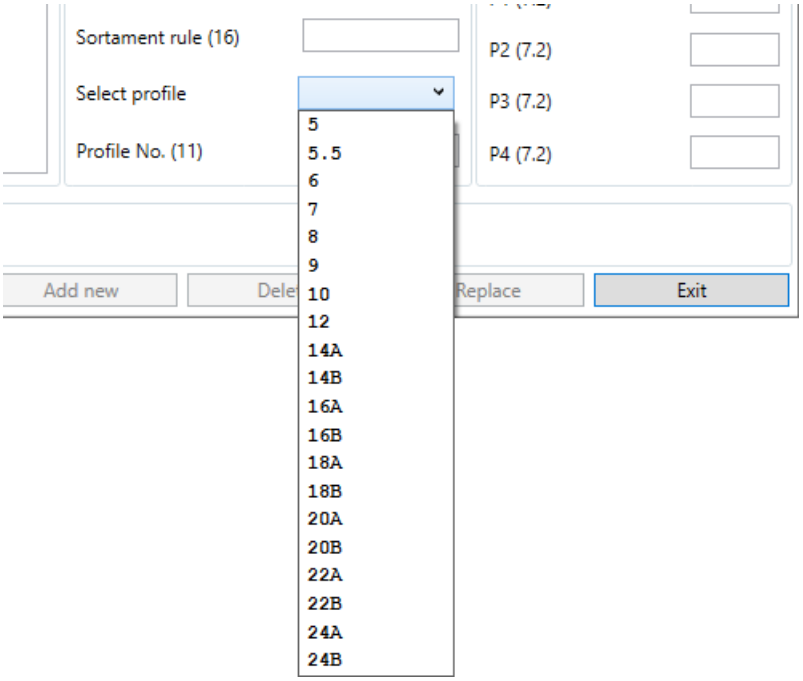
– **Standard code (11)**,
– **Grade (25)**,
– **Thickness, mm (7.1)**,
– **Width, mm (7.1)**,
– **Length, mm (7.1)**,
– **Dsty,g-cm3/Mr.wt,kg (8.3)**,
– **Material rule (16)**,
– **Sortament rule (16)**,
– **Profile No. (11)**,
– **Height (7.2)**,
– **Up/flange thckn. (7.1)**,
– **Low/flange thckn. (7.1)**,
– **Low/flange width (7.1)**,
– **Sec. area (7.2)**,
– **XCS (7.2)**,
– **YCS (7.2)**,
– **P1 (7.2)**,
– **P2 (7.2)**,
– **P3 (7.2)**,
– **P4 (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).

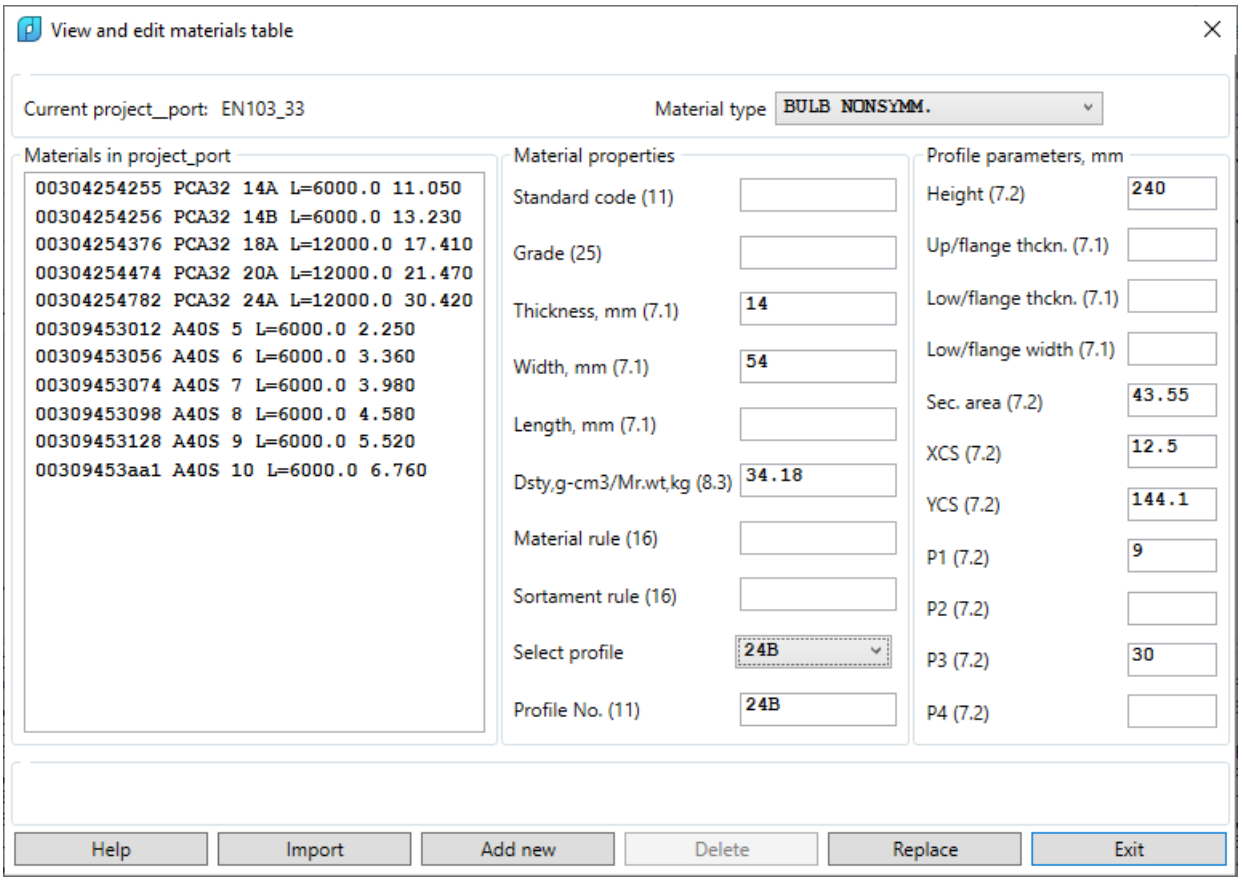
Feature **Profile No. (11)** and all the features in **Profile parameters, mm** are used only in profile materials (these are all types except **SHEET FLAT**, **SHEET GOFFERED**, **SHEET CORRUGATED**, **SHEET PERFORATED**, **FLAT BAR**, **OTHER MATERIALS**). Parameters **P1**–**P4** are parameters of profile section geometry (rounding radii, inclination angle, etc.). Their sense depends on material subtype.

For simplification of filling-in profile data in the area **Material properties** there is an auxiliary drop-down list **Select profile**. For sheets this list is disabled. But in case of selecting profile material type the list is being enabled. 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).

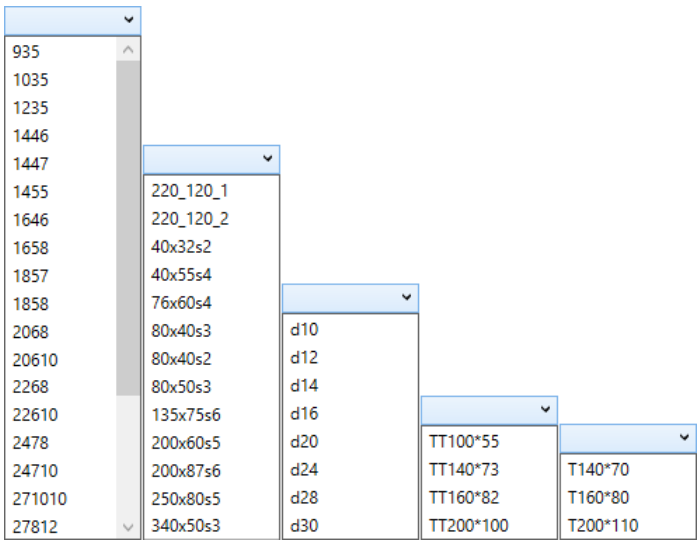


Drawing 28. Drop-down list with types of nonsymmetric bulb



Drawing 29. Filling fields with standard values of selected profile

Such an approach helps entering profile materials parameters. On dr. 30 there is shown contents of drop-down list **Select profile** for some implemented material types: bulb symmetric, Z-beam equal, rod, double-T, T-beam.



Drawing 30. Standard lists of profile scantlings

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

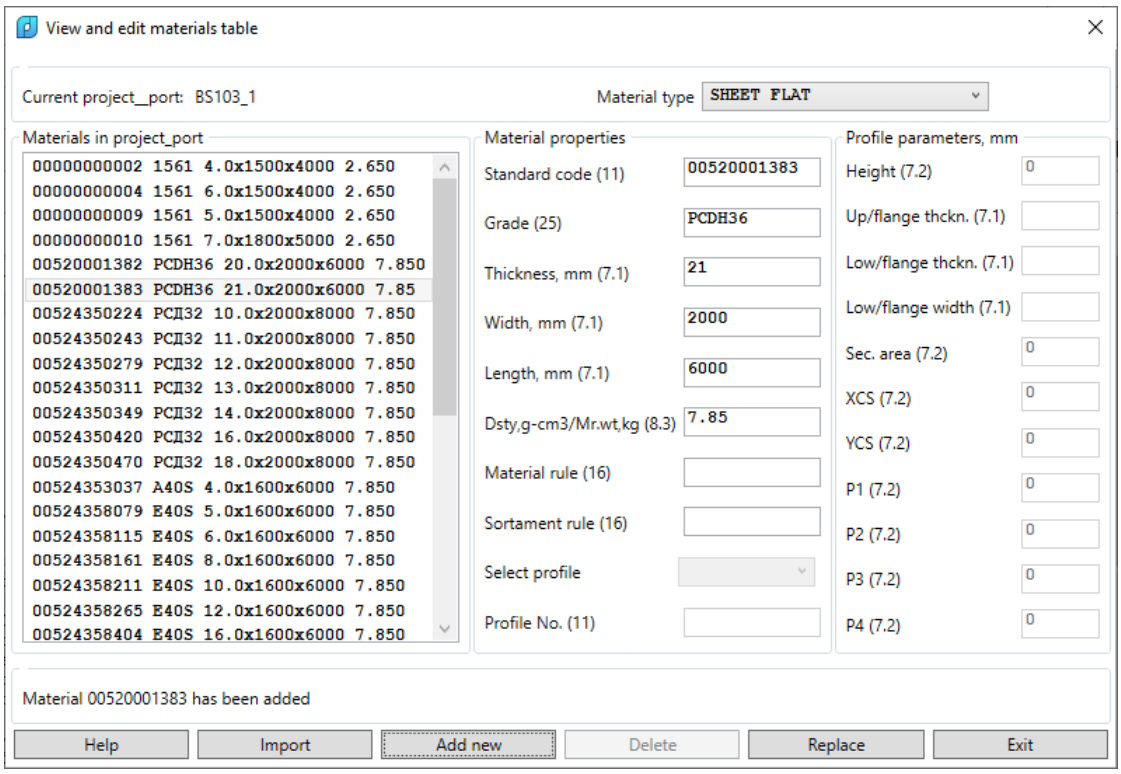
E.g. for activation of button **Replace** it is necessary to enter into editing any parameter and then by mouse left-click or pressing **Tab** key to move cursor into another field (at this moment there starts verification of text in the previous field).

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

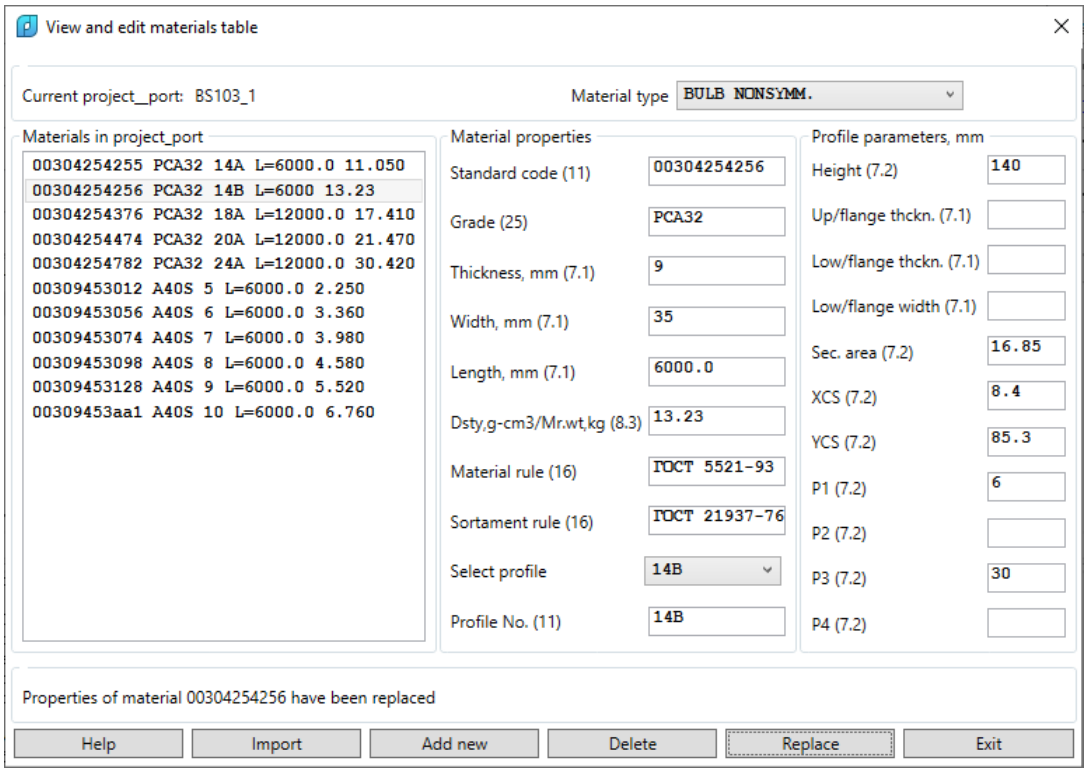
In the processes of adding and replacing materials value of **Standard code** must be unique for each material. Usualy it is 11-digit integer number but other symbols (except spaces) can be used too. Program controls uniqueness of standard codes inside current order (lowcase and uppercase symbols are 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.

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

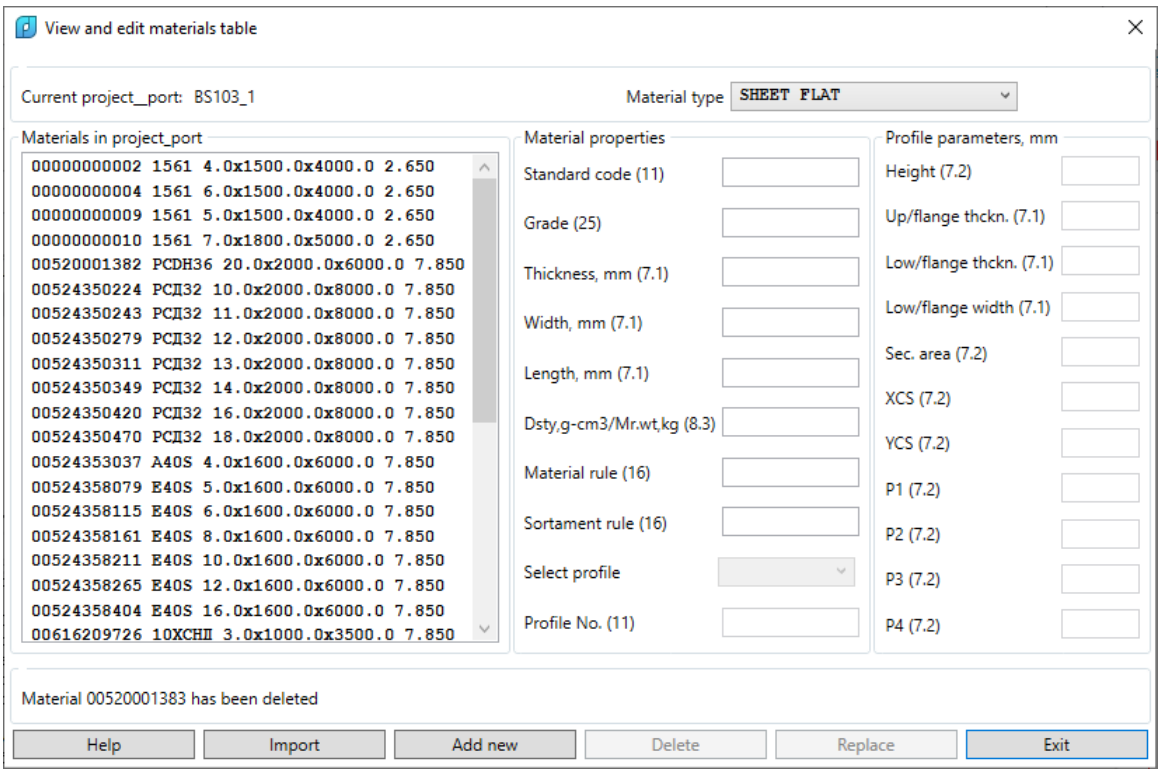


Drawing 31. Adding new material



Drawing 32. Editing material properties

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

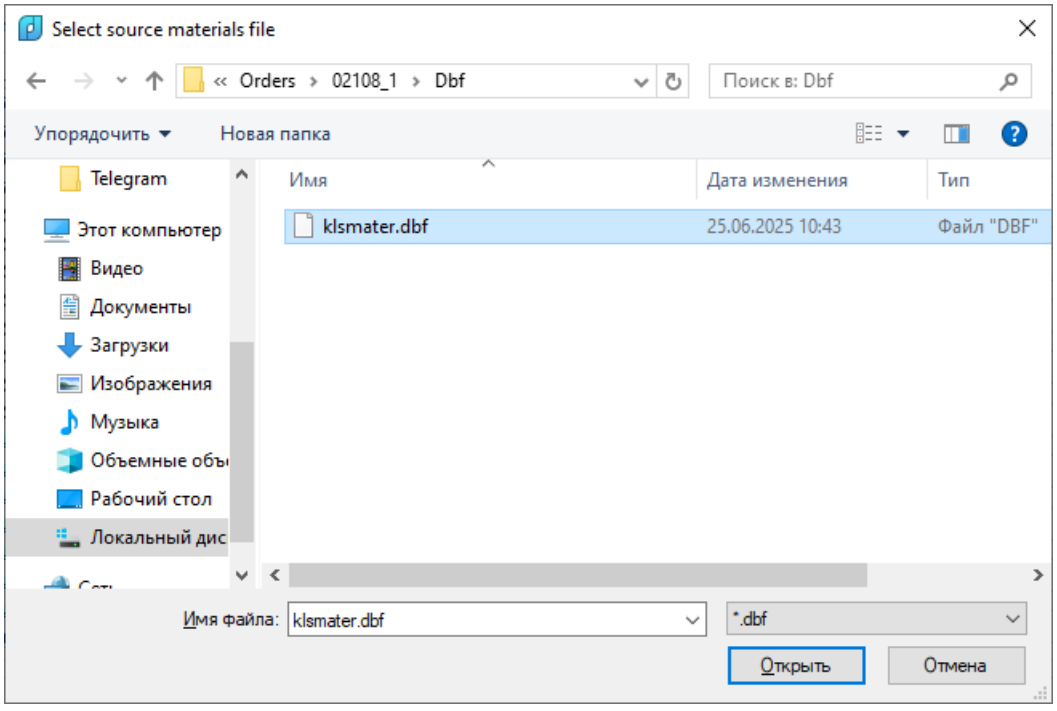


Drawing 33. Deleting material

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

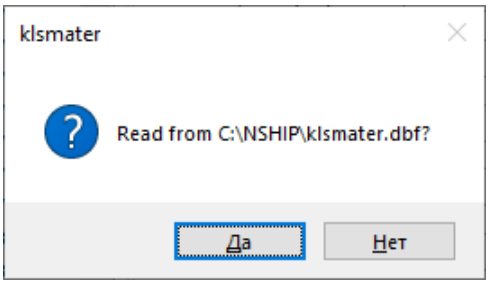
Button **Import** allows copying materials to klsmater.dbf of current project_port from other table klsmater*.dbf (e.g. archieved).

For the first time program offers to select file with prefix klsmater and extension .dbf, opening window **Select source materials file** (dr. 34).



Drawing 34. Window **Select source material file**

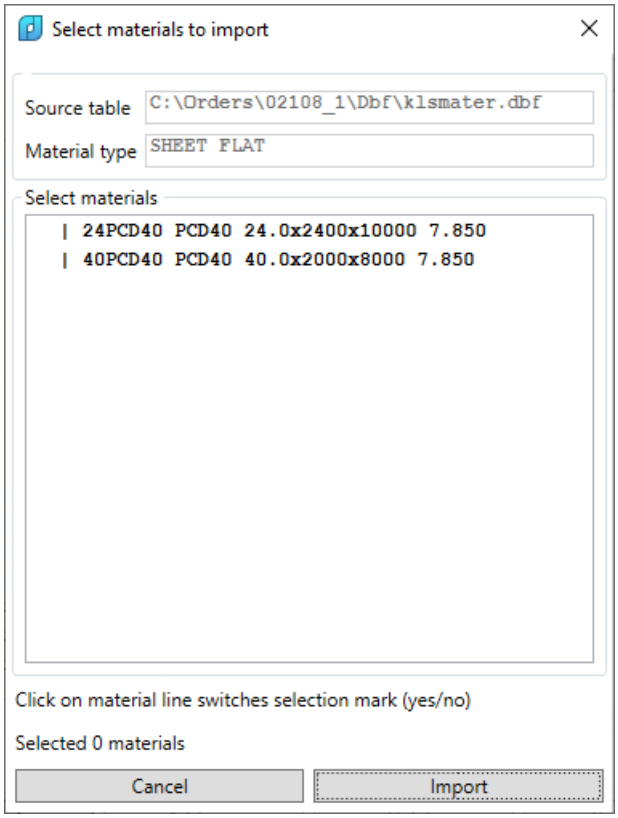
For selection there allowed not only files with name klsmater.dbf, but also files with similar names, for example, klsmater23.dbf. Folder of source file can be changed. Full name of file is saved and will be suggested as default next time (dr. 35):



Drawing 35. Suggestion of work with source file by default

If reply is **No** (Нет**)**, then user will be requested for other source file.

After selection of dource file a dialog box **View and edit materials table**. is opened (dr. 36).



Drawing 36. Window **Select materials to import**

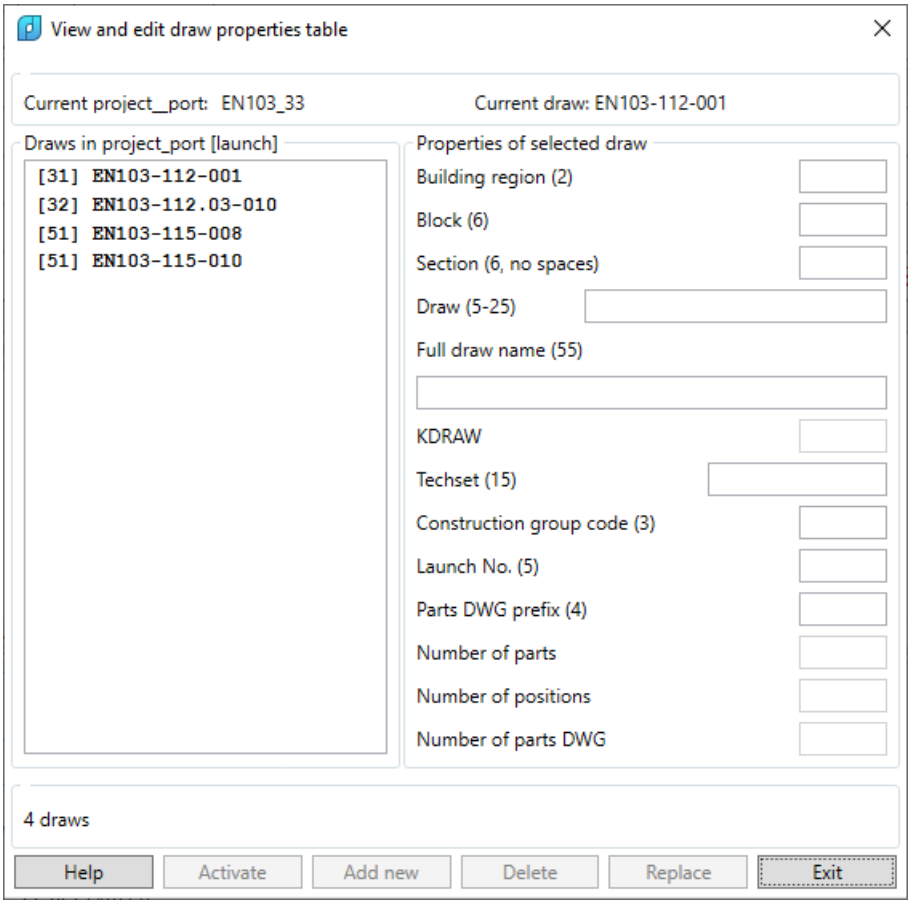
Using mouse left button mark those materials that are to be copied to the current project_port. Selected materials get sign “v”. Repeat click on the same line clears selection sign.

Note. It is suggested for selection not all the materials but only of the type that was set in window **View and edit materials table** before pressing button **Import**.

Click on button **Import** in the window **Select materials to import** runs copying selected materials. If program finds that material with a standard code is already present in the current project_port, then there is a request for rewriting material properties.

4.4. Draws (specifications)

File of project_port draws (parts lists, or specifications) is draws.dbf. Command **Draws** of submenu **TABLES** (button) opens dialog box **View and edit draw properties table** (dr. 37).



Drawing 37. Dialog box **View and edit draw properties table**

In the upper part of the window there is displayed name of the current project_port (in the form *project_portion*) and name of the current draw. Listbox **Draws in project_port [launch]** contains draw numbers (names) that are already included into the table (with launch number in square brackets.

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 a 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**,

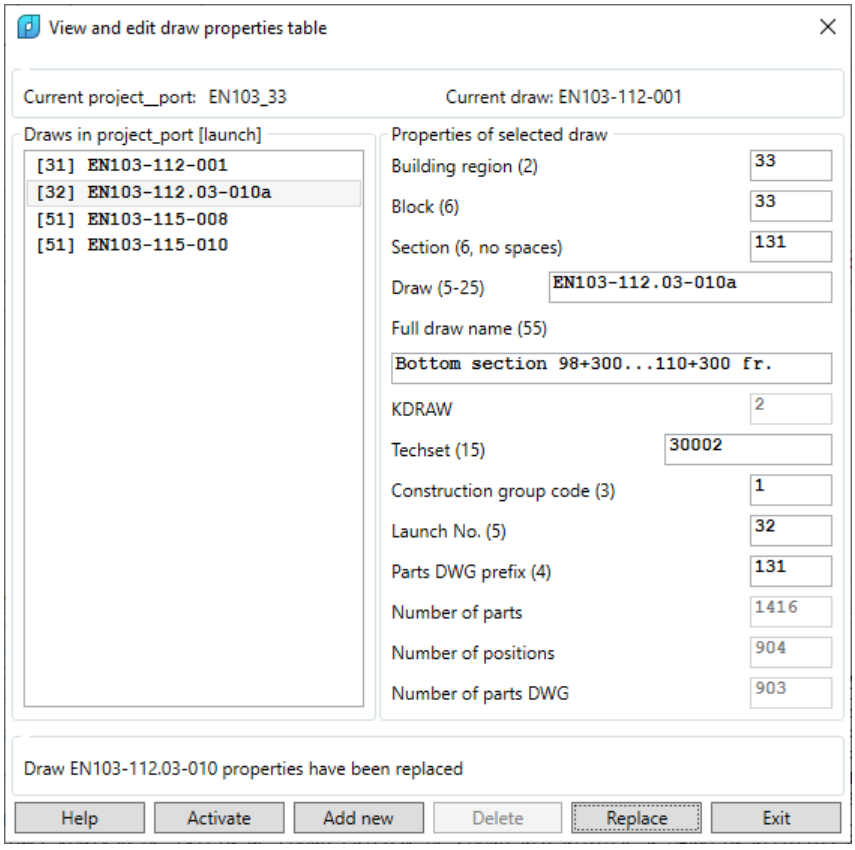
– **Number of positions**,

– **Number of parts DWG**.

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

At the first moment 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 project_port [launch]**. 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. 38).

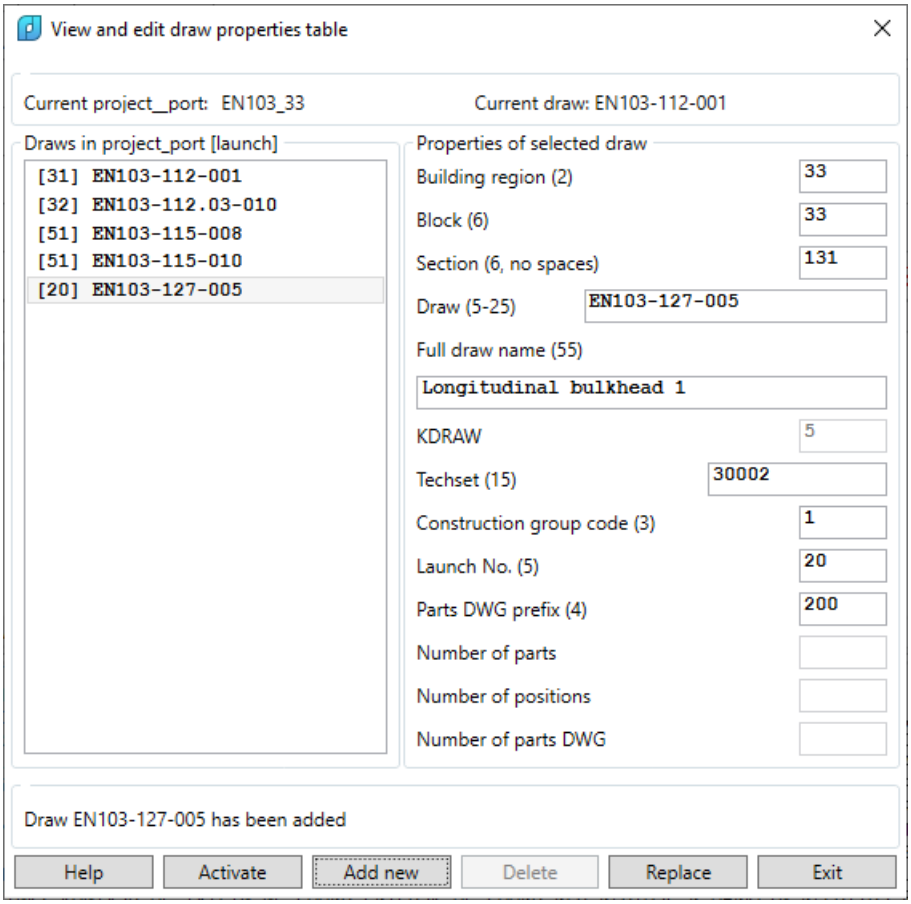


Drawing 35. Replacing draw properties

Parameter **Draw (5-25)** has a key importance, it contains draw number that is to be unique in the current project_port. 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 **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 project_port (to escape their damage).

On dr. 39 there is a sample of adding a new draw.

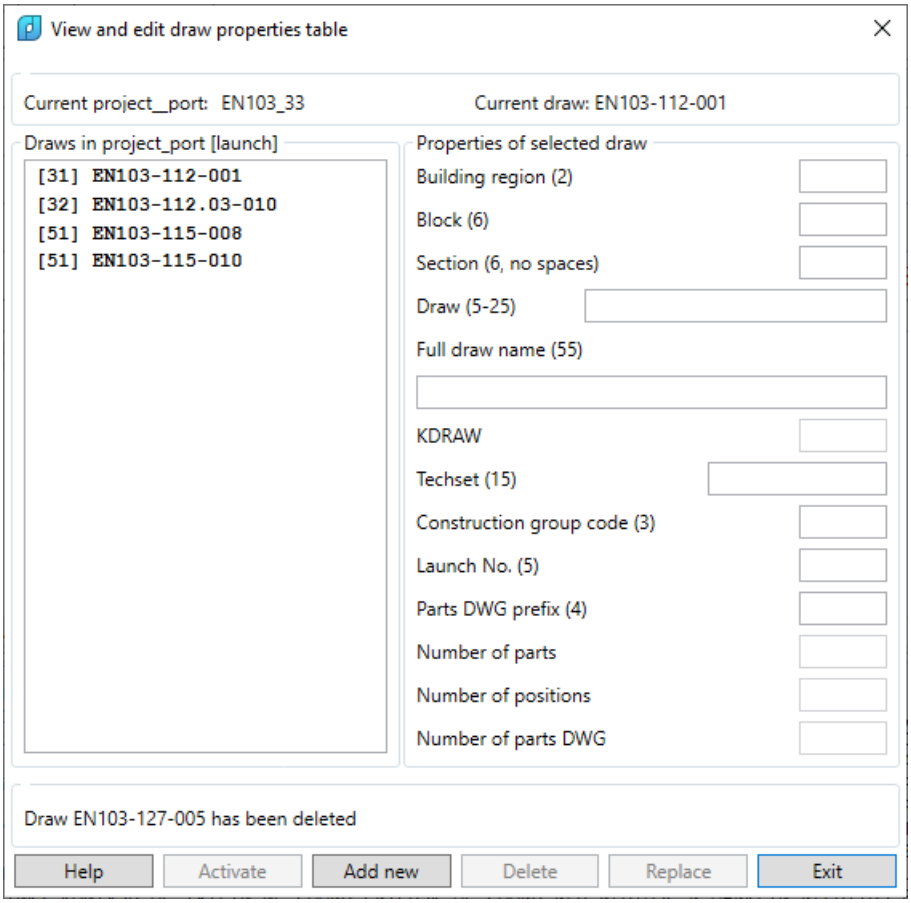


Drawing 39. Adding new draw

On dr. 40 window state after deleting selected draw is shown (button **Delete** was used).

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 project_port [launch]** and press button **Activate**. As a result of operation the number in the field **Current draw** will be changed.



Drawing 40. Deleting draw

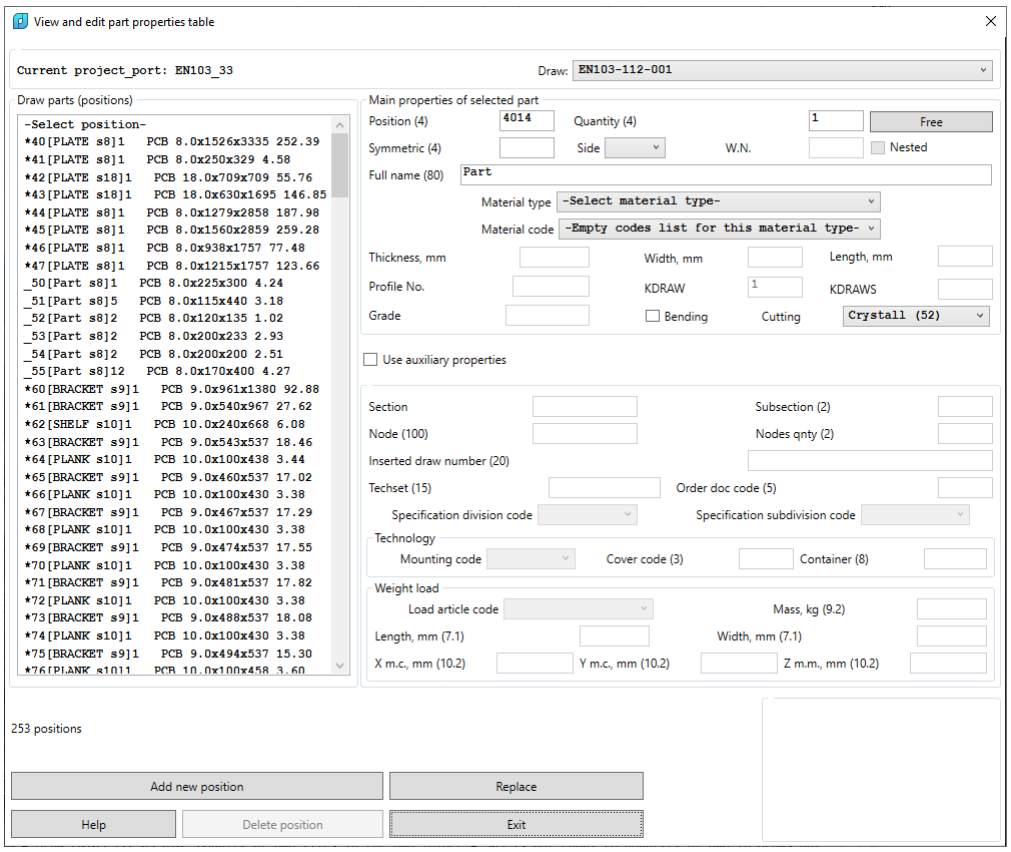
4.5. Parts

Parts lists are connected to draws (or specifications). File of project_port parts table is named specp.dbf. Command **Parts** of submenu **TABLES** (button) calls dialog box **View and edit parts properties tables** (dr. 41).

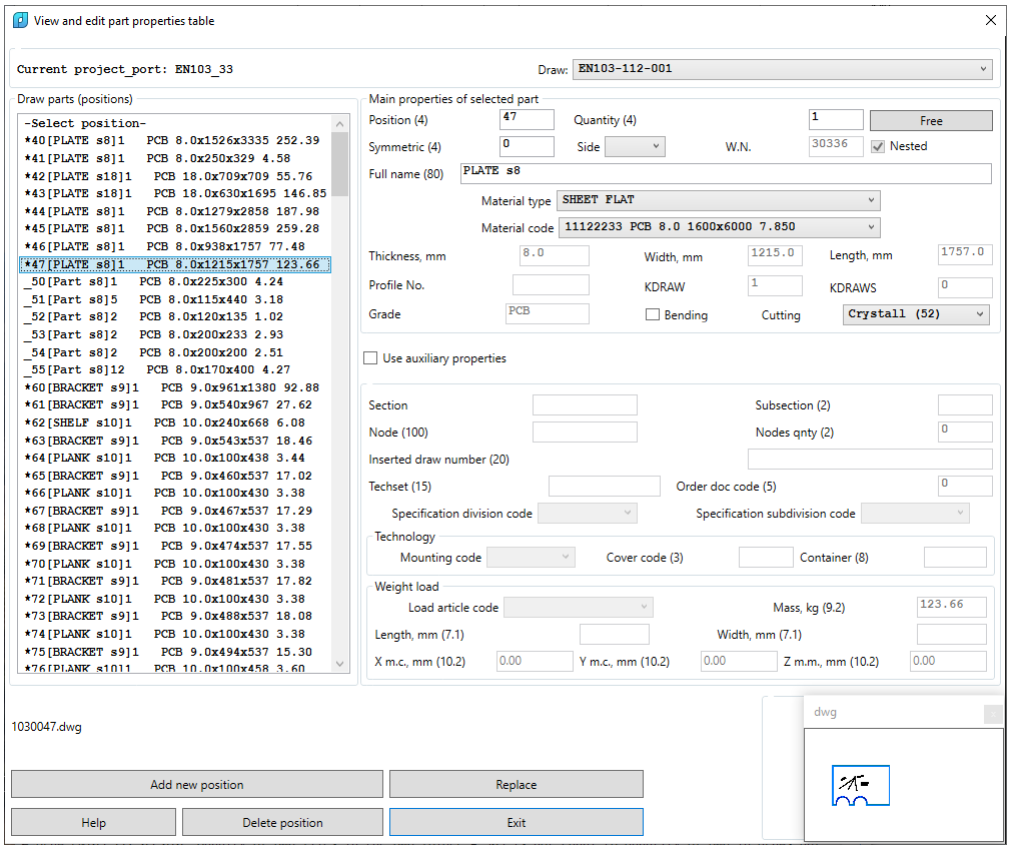
After end of load left zone of the window displays parts list of the active draw in current project_port. In the upper part of the window there are shown current project_port name and number of active draw for which spedification is shown. List is sorted by position number. If active draw is not set then user must select it from the drop-down list **Draw**.

In the left listbox user should select part position. Then the right zone 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**. Moreover if for this part geometry was calculated then the info line will display name of geometry DWG file and in the right lower corner raster image of part will appear (dr. 42). If instead of image there will be text **No thumbnail** then it means that raster image was not saved in the part DWG format or was stored in an incompatible format.



Drawing 41. Window **View and edit parts properties tables**



Drawing 42. Property values of selected part

Area **Main properties of selected part** is used for property values of the selected part or values of a new part to be added to the current draw specification. Nine fields can be edited.

The rest fields are disabled and show values that cannot be directly changed by user (calculated from other properties).

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

– **Position (7)**,

– **Quantity (4)**,

– **Symmetric (7)**,

– **Side**,

– **Full name (80)**,

– **W.N.** (work number of the user saved the part),

– **Nested** (is part already nested or not),

– **Material type**,

– **Material code**,

– **Thickness, mm**,

– **Width, mm**,

– **Length, mm**,

– **Profile No.**,

– **KDRAW**,

– **KDRAWS**,

– **Grade**,

– **Bending**,

– **Cutting**.

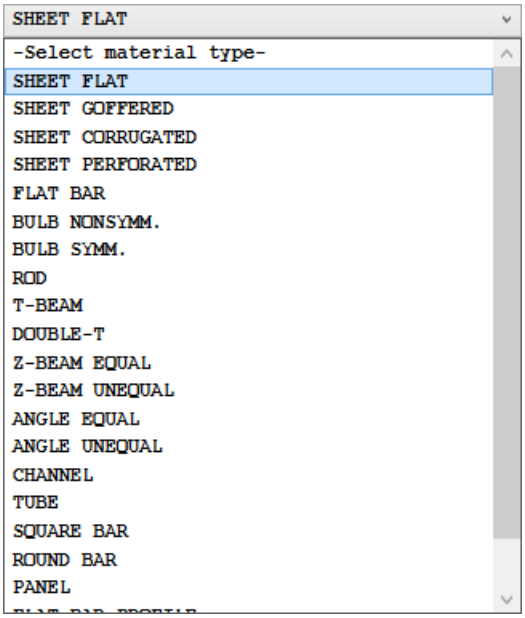
Digits in parentheses show maximum number of symbols in the property while manual input.

Button **Free** calculates 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.

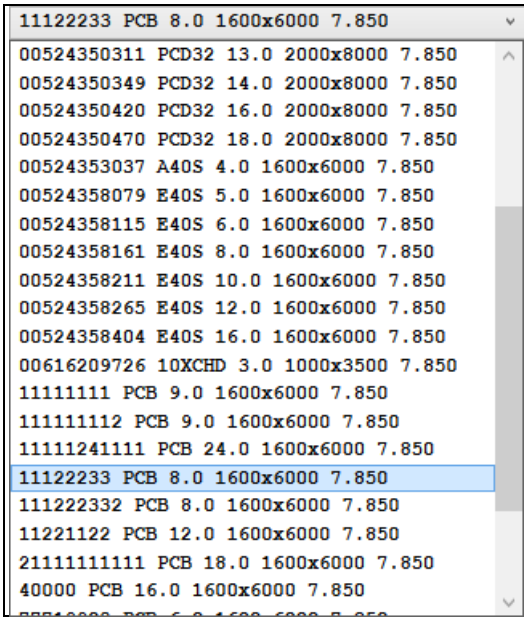
In the field **Symmetric (7)** there can be entered position number of a symmetric part on the other ship side. 0 in this field means no symmetric part. Parameter **Side** for the main part can be left empty or take values **PS**, **SB** or **CL**.

Part material is entered in two steps. First **Material type** is selected. The drop-down list displays allowed material types (dr. 43).

Second step is to select **Material code** from those codes included into earlier selected material type. The drop-down list shows materials of this type from the project_port table klsmater.dbf (dr. 44).



Drawing 43. Selection of material type



Drawing 44. 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 box **Bending** is checked then it means that during the process of part geometry generation in the module **Part** there was appended bending information. But state of checkbox is allowed to be changed manually.

Parameter **Cutting** can accept the following values of cutting line (type): **Crystall** (52), **Guillotine** (54), **Manual** (57), **Goffer** (55), **Ritm** (51).

If check the box **Use auxiliary properties**, 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)**,

– **Specification division code**,

– **Specification subdivision code**,

– **Mounting code**,

– **Cover code (3)**,

– **Container (8)**,

– **Load article code**,

– **Mass, kg (9.2)**,

– **Length,mm (7.1)**,

– **Width, mm (7.1)**,

– **X c.m., mm (10.2)**,

– **Y c.m., mm (10.2)**,

– **Z c.m., mm (10.2).**

In the parts list each position occupies one line which the most important properties are shown, for example:

***4003 [PANEL s4]2 G 1561M 4x1000x1000 100.80**.

The first asterisk (*) points that for this part the DB column 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);

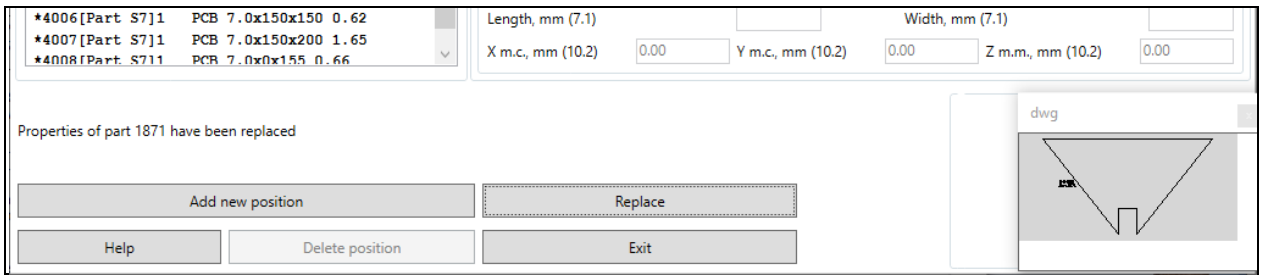
1561M — material grade;

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

100.80 — part mass, kg.

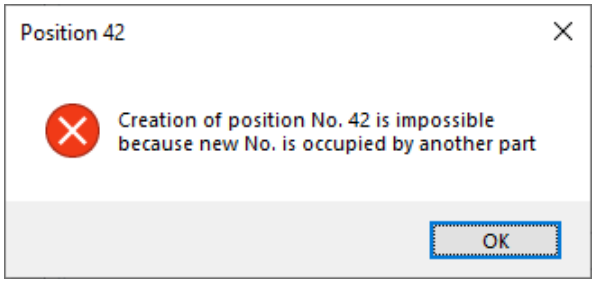
If the part line is too long then while paging the list box will change its width dynamically.

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. 45).



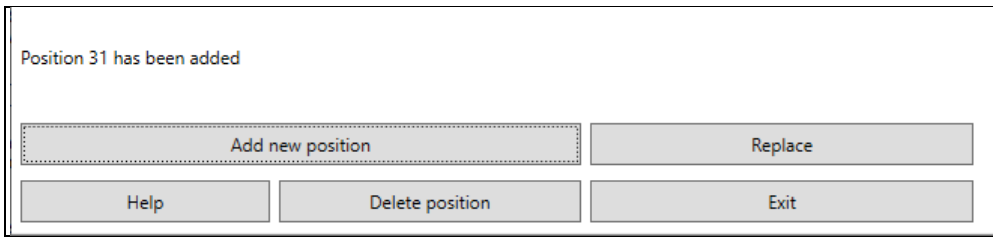
Drawing 45. Part properties replacement

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. 46).



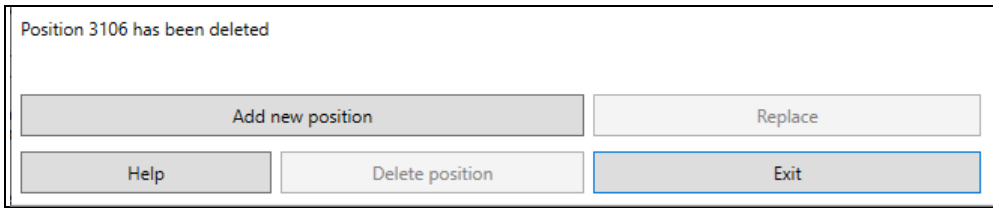
Drawing 46. Message on error in the position number

On dr. 47 there is a sample of adding new part (with button **Add new position**).



Drawing 47. Adding new position

On dr. 48 there is a sample of window state after deleting a part (with button **Delete position**).



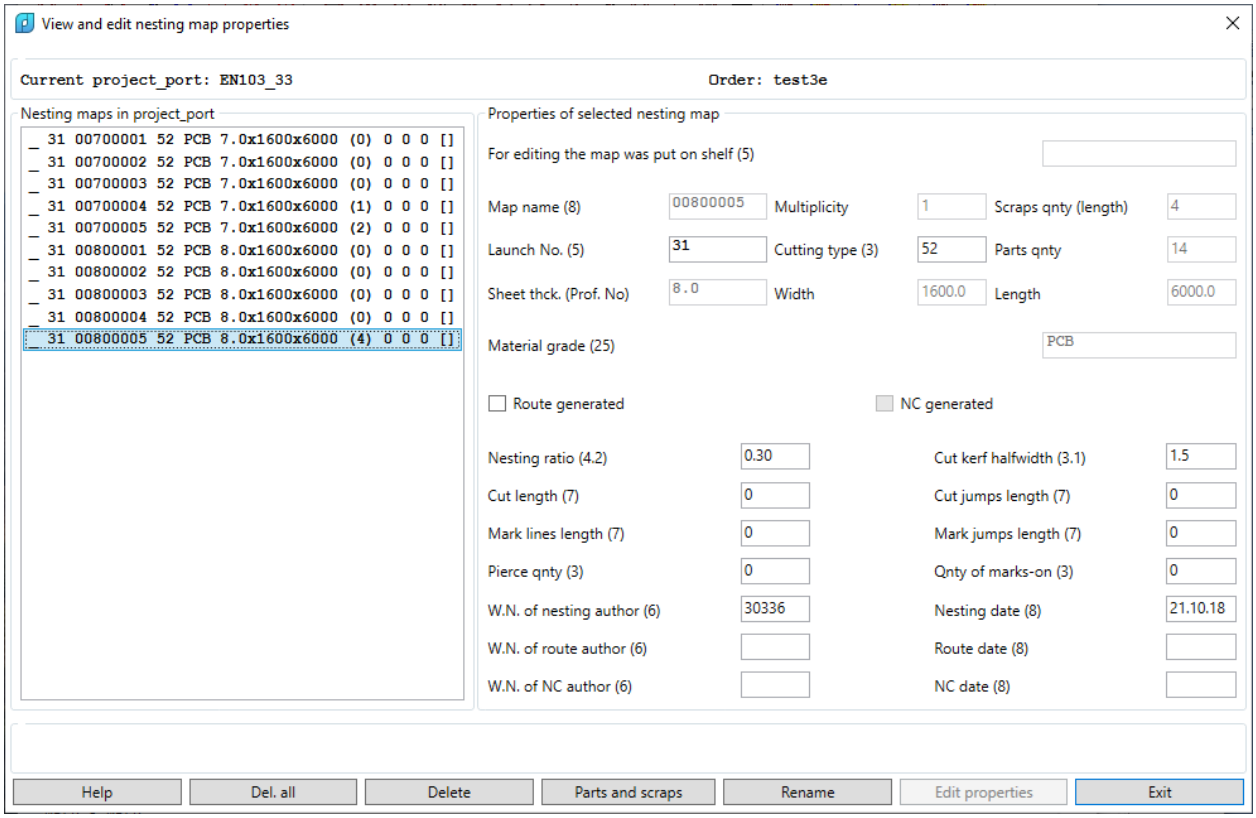
Drawing 48. Deleting part

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

4.6. Nesting maps

File of DB table for project_port sheet nesting maps is named kr_list.dbf. Command

Nesting maps of submenu **TABLES** (button) calls dialog box **View and edit nesting map properties** (dr. 49).



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

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

The line for shhet and profile nesting map looks like this:

*** 11 00900001 52 PCB 9.0x1600x6000 (1) 8600 4051 3 []** (sheet),

_ **11 P0000021 57 A40S 5 L=8000 (2281) []** (profile).

Names of profile maps begin only from letter P (latin).

Line 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:

11 — launch number;

00900001 — map name (sheet thickness s9.0); **P0000021** (profile);

52 — cutting type (52 — Crystall, 54 — mechanical, 57 — manual, 55 — goffer, 51 — Ritm);

PCB — material grade;

9x1600x6000 — thickness x width x length of the raw sheet; **5 L=8000** – profile 5 with length 8000 mm;

(1) — quantity of scraps in the sheet map; **(2281)** – length of profile scrap;

8600 — summary sheet cut length;

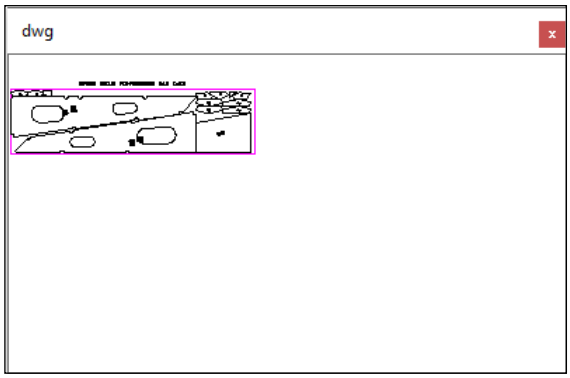
4051 — summary jump length in sheet cutting;

3 — quantity of pierces;

[] — sign that map is not put on shelf for correction (if sheet map is put on shelf, then in brackets there is its shelf name, e.g.: **[POL4]**).

Lower area of the window contains buttons: **Help**, **Del. all**, **Delete**, **Parts and scraps**, **Rename**, **Edit properties**, **Exit**. 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.

In case of selecting sheet nesting map line, to the right an auxiliary window opens, with mini-image of map (dr. 50).



Drawing 50. Window for viewing sheet nesting map

If selected sheet map is put on shelf for correction of geometry (contents), then shelf file name is displayed in the field **For editing the map was put on shelf (5)**.

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),

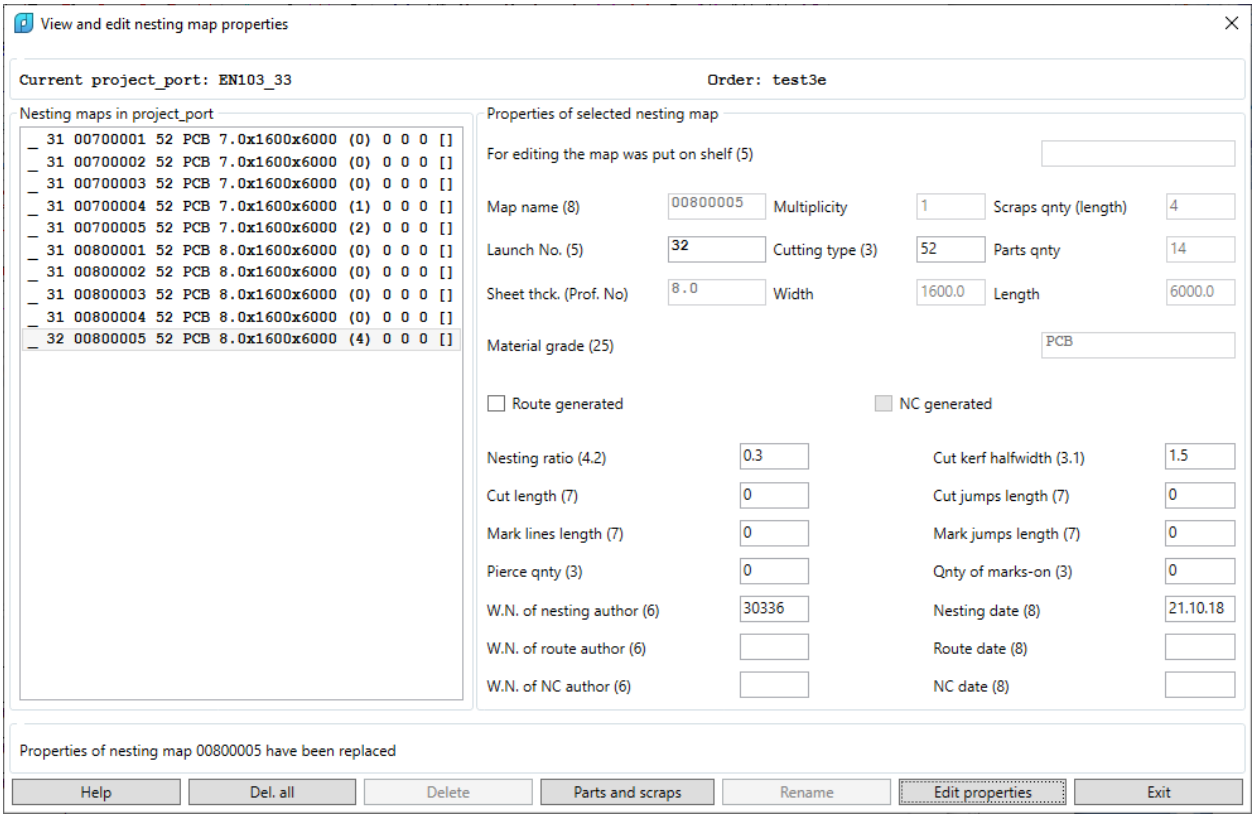
W.N. of NC author (6),

NC date (8).

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

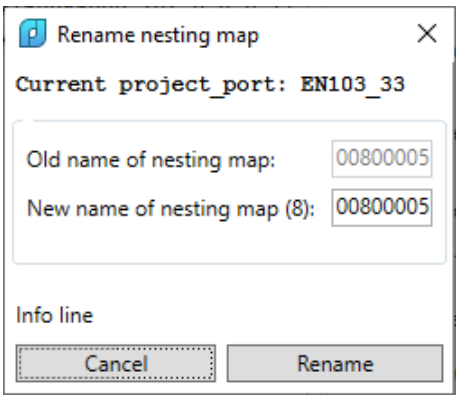
To replace in DB old property values for edited values one should press button **Edit properties**. На рис. 51 показан результат замены (в данном примере — номер запуска карты 00800005 изменен с 11 на 12).

On dr. 51 there is a sample for result of replacing property value (here launch number of map 00800005 is changed from 31 to 32).



Drawing 51. Replacing nesting map properties

When using button **Rename** an additional window **Rename nesting map** opens (dr. 52).



Drawing 52. Dialog box **Rename nesting map**

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. As a result there are renamed map DWG file, map name in map header inside DWG. If map has scraps then scrap names are changed in the table otxod.dbf or otxodpr.dbf.

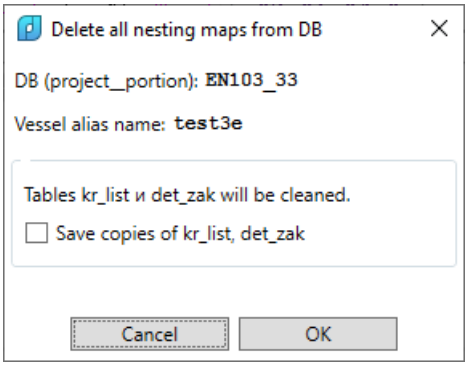
Button **Delete** is designed for deleting map selected in the left window area. The map is removed from DB and its DWG and SLD files are erased from the projet_port folder *Karty*.

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

Button **Del. all** is designed for full cleaning DB tables kr_list.dbf, det_zak.dbf (deletion of all nesting maps).

Note. This command does not delete maps DWG files and SLD files (if exist) from folder *Karty*.

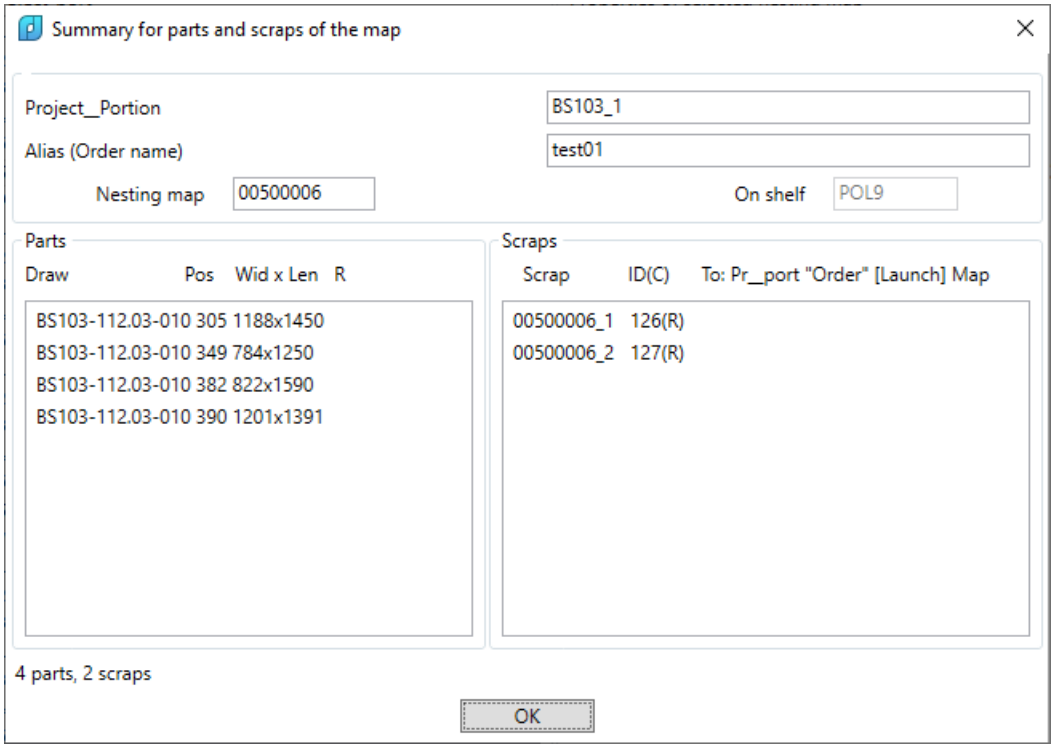
Command **Del. all** opens window **Delete all nesting maps from DB** (dr. 53).



Drawing 53. Dialog box **Delete all nesting maps from DB**

As this cleaning operation is considered dangerous, then in the window there is a checkbox **Save copies of kr_list, det_zak**. If check the box then before cleaning program creates copies of files kr_list.dbf, kr_list.cdx, det_zak.dbf in the folder *Dbf* with names kr_list_copy.dbf, kr_list_copy.cdx, det_zak_copy.dbf (files with copies name if exist must be deleted preliminarily by hand).

Button **Parts and scraps** serves for output of help 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. 54).



Drawing 54. 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 project_port name and its alias.

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

Draw – part's draw name;

Pos – part's position number;

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** – curved);

Pr_port – name of project_port where scrap was sent for nesting to;

"Order" – alias name of project_port in which scrap was nested;

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

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

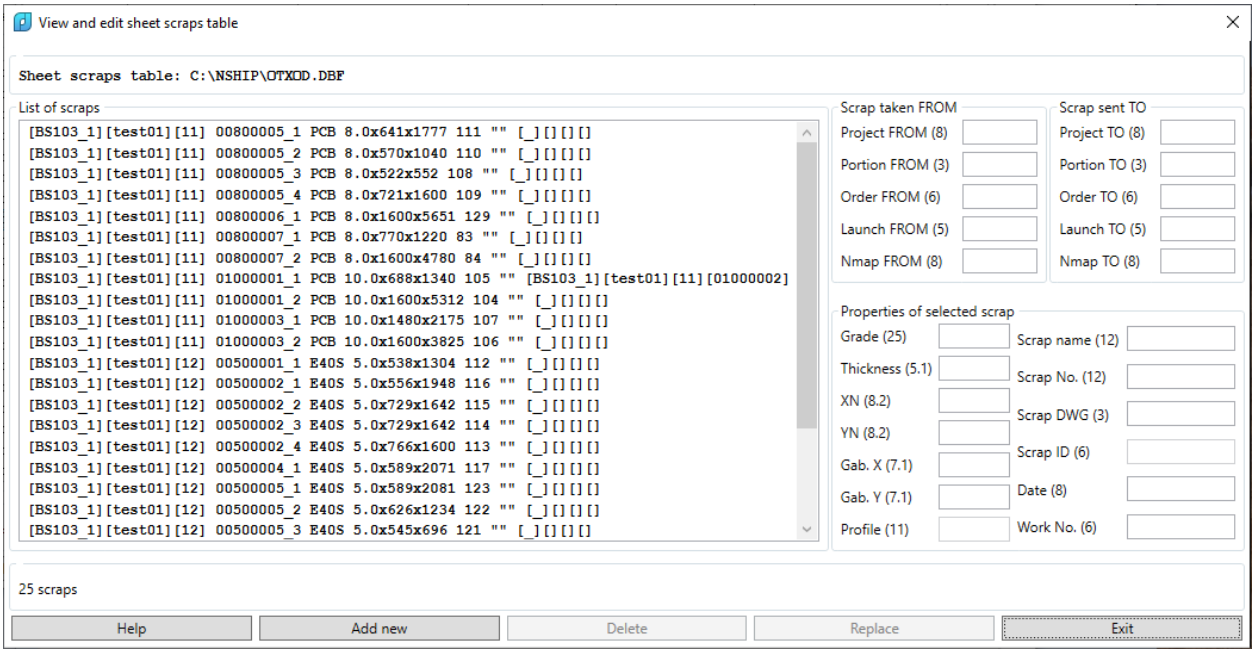
4.7. Scraps

The system works with scraps of sheet and profile metal. Files of scrap DBF tables are: otxod.dbf (sheet), otxodpr.dbf (profile). These tables usually are not bound with current project_port. Their location folder is defined in Windows registry by parameter scrapsnano.

4.7.1. Sheet scraps

File for storing usable sheet scraps is otxod.dbf.

Command **sheets** of submenu **TABLES > SCRAPS** (button) calls dialog box **View and edit sheet scraps table** (dr. 55).



Drawing 55. Dialog box **View and edit sheet scraps table**

After initial load left list **List of scraps** is being filled with scraps data 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][test01][11] 00700003_2 PCB 7.0x628x668 19951 “DWG” [12802_5] [ship8][24][00700027]

The line includes the following properties:

[BS103_1] — project_port (project and portion) from which the scrap is received;

[test01] — order of the project_port from which scrap came;

[11] — launch number of the project_port from which scrap came;

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 and gabarit sizes (width x length) of rectangular scrap (or gabarits of bounding box if scrap is curved);

19951 — ID (address) of scrap in DB table otxod.dbf;

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

[12802_5] — project_port (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 [_];

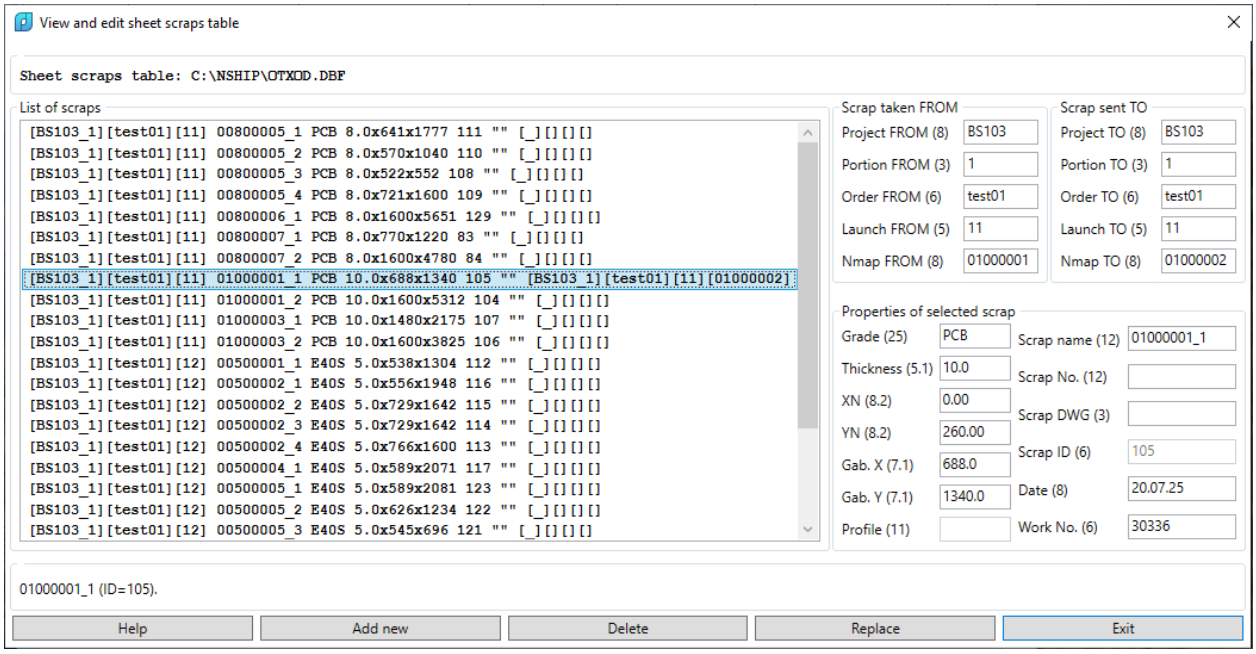
[ship8] — order name of the project_port to which this scrap was sent for nesting; if scrap is free then parameter is shown as "".

[24] — launch number of project_port to which order was sent to create child map with parts on it; if scrap is yet free then parameter is shown as [];

[00700027] — child map name or [].

Note. In the current version curved 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. 56).



Drawing 56. 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 (11)**, **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.

Note 1. Deletion is implemented in the following way. Scrap is deleted but correction of source nesting map is not done. Repeat saving this map restores scraps.

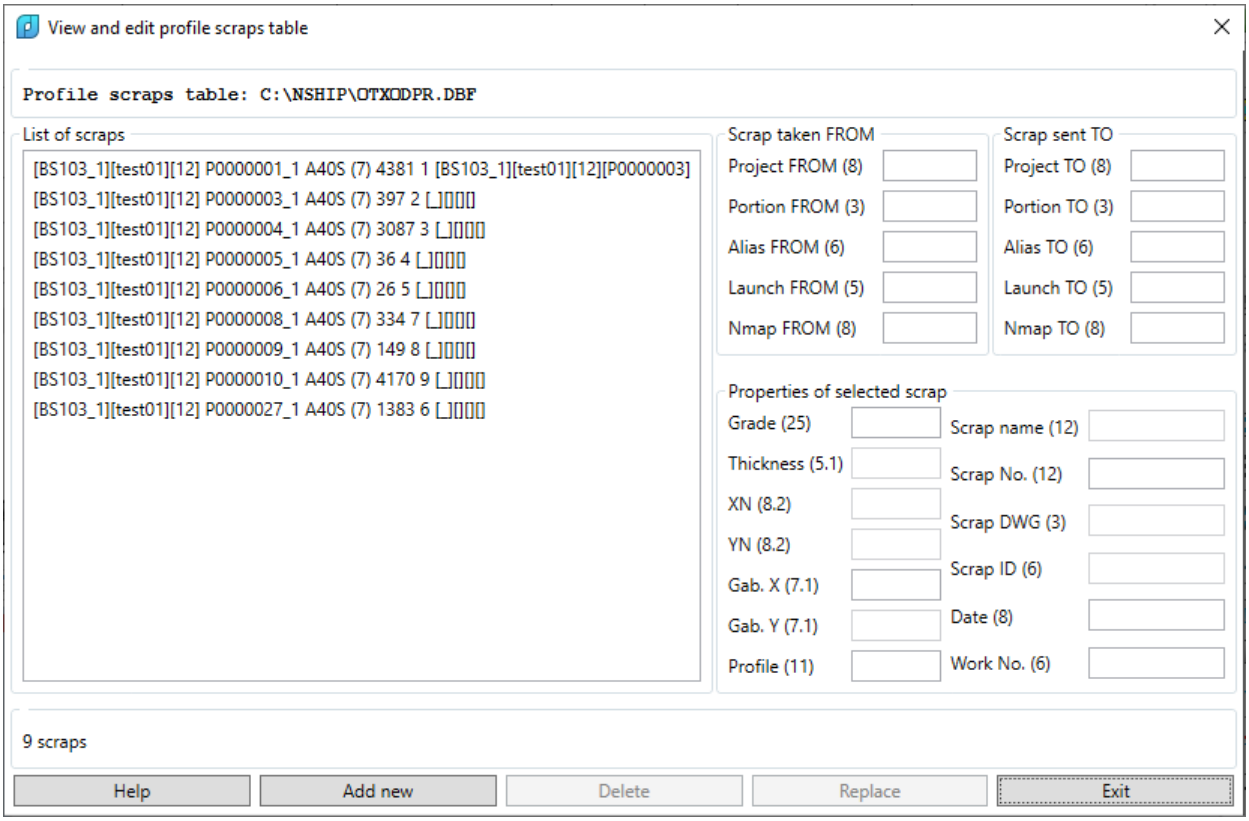
Note 2. Operation of replacement is created only for properties of areas **Scrap taken FROM** and **Scrap sent TO**. After saving program automatically changes **Date** and **Work No.**.

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 sheet scraps table** and press button **Add new**.

4.7.2. Profile scraps

File for storing usable profile scraps is otxodpr.dbf. This table, as otxod.dbf, is not connected to current project_port.

Command **profiles** of submenu **TABLES > SCRAPS** (button) calls dialog box **View and edit profile scraps table** (dr. 57).



Drawing 57. Window **View and edit profile scraps table**

After initial load listbox **List of scraps** shows scraps from file otxodpr.dbf, its full path isseen in the upper zone. In the scraps list each scrap data is output as a separate line like this one:

[BS103_1][test01][11] P0000001_1 A40S (30810H260) 2976 95 [EN103_33][test3e] [4][P0000052]

Here is used parameters description:

[BS103_1] — project_port (project and portion), из которого пришел отход;

[test01] — order of the project_port from which scrap came;

[11] — launch number of the project_port from which scrap came;

P0000001_1 — name (number) of the scrap, contains parent map name (P0000001) and internal scrap number (1) in the map;

A40S — material grade;

(30810H260) — profile name;

2976 — scrap length;

95 — ID (address) of scrap in DB table otxodpr.dbf;

[EN103_33] — project_port (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 [_];

[test3e] — order name of the project_port to which this scrap was sent for nesting; if scrap is free then parameter is shown as "".

[4] — launch number of project_port to which order was sent to create child map with parts on it; if scrap is yet free then parameter is shown as [];

[P0000052] — child map name or [].

To display data of the profile scrap, selected in **List of scraps**, the same areas as for sheet scrap are used.

Buttons **Delete** and **Replace** serve for deletion and replacement of those data that are allowed for edit.

Note 1. Scrap is deleted but correction of source nesting map is not done. Repeat saving this map restores scraps.

Note 2. Operation of replacement is created only for properties of areas **Scrap taken FROM** and **Scrap sent TO**. After saving program automatically changes **Date** and **Work No.**.

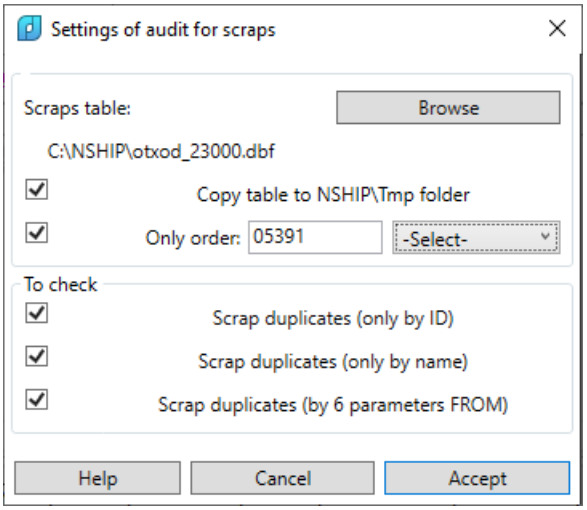
Button **Add new** serves for creation in otxod.dbf a record corresponding to a new scrap or to a lost scrap.

4.7.3. Audit of scraps

Errors in scrap tables otxod.dbf, otxodpr.dbf can arise after user errors, writing fails (especially if scraps file is located on server for organizing simultaneous work of users group). It can result in empty fields or records, names repetition. For controlling state system administrator needs from time to time to run audit of scraps and fix errors.

4.7.3.1. Before starting audit command administrator should make settings and enter operation parameters. Menu item **BDATA > TABLES > SCRAPS > Settings for audit** (button  of toolbar **DB tables**) is used. Command opens dialog box **Settings of audit for scraps** (dr. 58).

Parameters of previous audit operation are suggested by default for new execution. Upper area contains default names of current project_port and current order. Scraps file must be selected by button **Browse**.



Drawing 58. Window **Seetings of audit for scraps**

Note. System deals with two active scraps files (otxod.dbf and otxodpr.dbf), therefore audit must be run for both files one by one. When moving from old N-Ship+ versions to new versions file otxod.dbf can include not only sheet scraps but profile scraps too, therefore audit programs verify scraps of both types, for any selected file. It is possible to select files with different names too, if while archieving files were renamed (e.g., otxod2_r.dbf).

Box **Copy table to NSHIP\Tmp folder** is checked for purpose to make audit not for real file but for its copy (recommended). If scraps table is located on network disk, then setting this checkbox is obligatory, not to damage work of other users and to reduce operation time.

If box **Only order** is checked, then calculation will be run only with scrap of order specified to the right. Order selection reduces calculations volume and execution time. Order name is entered in edit box. If order is present in the current orders registry prkt_ckb.dbf, then there is an alternative way — from combobox **-Select-**.

Audit program always seeks scraps with null (empty) ID and empty names.

Note. ID is a unique internal address in scraps table that is not changed while packing DBF file. It is saved in column ID_OTXOD.

Additional verification options can be set in the area **To check**. These checknoxes can be set (from 0 to 3): **Scrap duplicates (only by ID)**, **Scrap duplicates (only by name)**, **Scrap duplicates (by 6 parameters FROM)**. The last variant of comparison uses the following parameters of source nesting map (DB field names in parentheses):

- scrap name (NUM_IN_KR) for sheet scrap, scrap number (NOMER_OTX) for profile scrap;
- nesting map name (FROM_KR);
- order name (FROM_ZAKAZ);
- project name (PROEKT);
- project portion number (FROM_PORT);
- launch number (FROM_ZAP).

Audit settings are stored in the file NSHIP\Ini\doaudit.ini.

4.7.3.2. Audit command is run either with menu item **BDATA > TABLES > SCRAPS > Audit**, or with button  of toolbar **DB tables**.

During work command generates information messages in command line:

Audit scraps table...

10.07.2024 16:06:35.67

File C:\NSHIP\otxod_23000.dbf copied to folder Tmp

Scraps table c:\NSHIP\Tmp\otxod_23000.dbf.

Filter by order: 05391

Table read.

Number of scraps=4274, sheet=3659, profile=615.

No sheet scraps with empty (zero) ID.

No profile scraps with empty (zero) ID.

Sheet scraps with empty names - 4.

Excluded scraps - 4.

No profile scraps with empty names.

Searching for sheet scrap duplicates by 1 parameter (ID)...

Groups of sheet scraps with equal ID - 109 (no use of parameters FROM).

Involved scraps - 220 from 3655.

Searching for profile scrap duplicates by 1 parameter (ID)...

Groups of profile scraps with equal ID - 16 (no use of parameters FROM).

Involved scraps - 95 from 615.

Searching for sheet scrap duplicates by 1 parameter (name)...

Groups of sheet scraps with equal name - 92 (no use of parameters FROM).

Involved scraps - 211 from 3655.

Searching for profile scrap duplicates by 1 parameter (name)...

Groups of profile scraps with equal name - 6 (no use of parameters FROM).

Involved scraps - 12 from 615.

Searching for full sheet scrap duplicates by 6 parameters...

Groups of coincident sheet scraps - 49 (with parameters FROM).

Involved scraps - 103 from 3655.

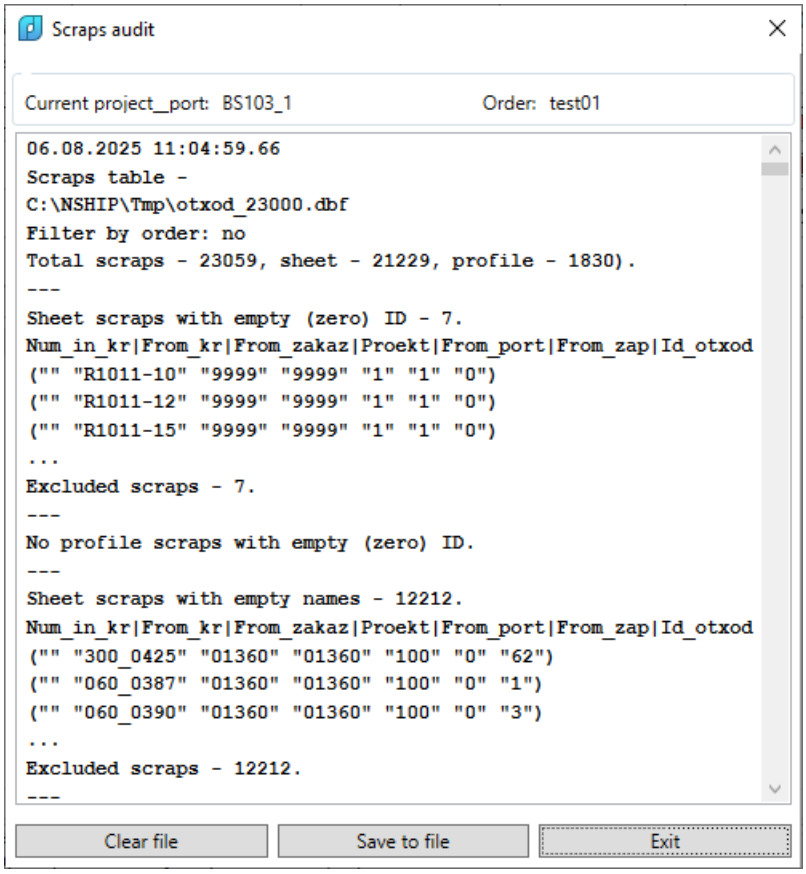
Searching for full profile scrap duplicates by 6 parameters...

No coincident profile scraps (by 6 parameters)).

10.07.2024 16:06:36.71

Execution time 0h:0':1.04"

4.7.3.3. Listing of calculations with more detailed results are output in the window **Scraps audit** (dr. 59).



Drawing 59. Window **Scraps audit** (1)

Button **Save to file** saves listing content appending to the file Audit of scraps.txt in folder *Doc* of current project_port. If previous file content is not required then before saving user must click button **Clear file**.

The first part of listing (see dr. 59) includes start time, table name, filter, scraps data (total quantity, sheet quantity, profile quantity). Then there is information on results of searching scraps with empty (zero) ID and with empty names. These scraps are excluded from further calculation.

The second part of listing (dr. 60) includes data for scraps with coincident IDs, sorted by ID (sheet, profile).

Here are sample results, by groups with coincident IDs:

Searching for sheet scrap duplicates by 1 parameter (ID)...

Groups of sheet scraps with equal ID - 109 (no use of parameter FROM).

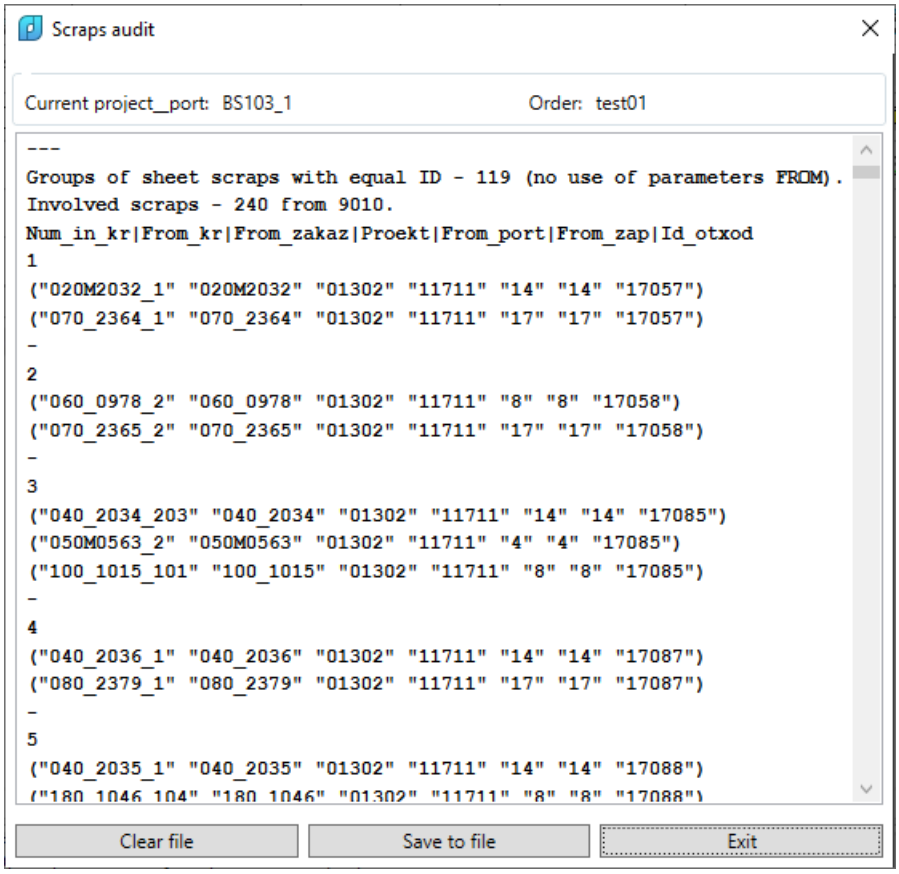
Involved scraps - 220 from 3655.

Num_in_kr|From_kr|From_zakaz|Proekt|From_port|From_zap|Id_otxod

1

*("020M2032_1" "020M2032" "05391" "4294" "14" "14" "**17057**")*

*("070_2364_1" "070_2364" "05391" "4294" "17" "17" "**17057**")*



Drawing 60. Window **Scraps audit** (2)

2

("060_0978_2" "060_0978" "05391" "4294" "8" "8" "17058")

("070_2365_2" "070_2365" "05391" "4294" "17" "17" "17058")

…

108

*("070_2102_1" "070_2102" "05391" "4294" "12" "***" "30011")*

("200_3305_1" "200_3305" "05391" "4294" "9" "905" "30011")

109

("080_3278_1" "080_3278" "05391" "4294" "9" "905" "30030")

*("120_2986_1" "120_2986" "05391" "4294" "25" "***" "30030")*

Searching for profile duplicates by 1parameter (ID)...

Groups of profile scraps with equal ID - 16 (no use of parameter FROM).

Included scraps - 95 from 615.

Num_in_kr|From_kr|From_zakaz|Proekt|From_port|From_zap|Id_otxod

1

*("045Y0050_1" "045Y0050" "05391" "4294" "27" "27" "**6599**")*

*("045Y0051_1" "045Y0051" "05391" "4294" "27" "27" "**6599**")*

*("045Y0053_1" "045Y0053" "05391" "4294" "27" "27" "**6599**")*

-

2

("100X0149_1" "100X0149" "05391" "4294" "26" "26" "6984")

("100X0150_1" "100X0150" "05391" "4294" "26" "26" "6984")

("100X0155_1" "100X0155" "05391" "4294" "26" "26" "6984")

("100X0158_1" "100X0158" "05391" "4294" "26" "26" "6984")

-

…

15

("060P0001_1" "060P0001" "05391" "4294" "16" "16" "29956")

("080P0002_1" "080P0002" "05391" "4294" "16" "16" "29956")

-

16

("010P0095_1" "010P0095" "05391" "4294" "25" "25" "30036")

("200P0022_3" "200P0022" "05391" "4294" "9" "905" "30036")

-

In the third part there are results of searching scraps with equal name (sheet, profile). Data are divided into groups by names. Everything is sorted by alphabetic order of names. More often this part of listing is the greatest. Sample:

Groups of sheet scraps with equal name - 92 (no use of parameter FROM).

Involved scraps - 211 from 3655.

Num_in_kr|From_kr|From_zakaz|Proekt|From_port|From_zap|Id_otxod

1

*("**00300001_1**" "030M0421" "05391" "4294" "4" "4" "11262")*

*("**00300001_1**" "030M0429" "05391" "4294" "4" "4" "11263")*

*("**00300001_1**" "030_0421" "05391" "4294" "4" "4" "11270")*

*("**00300001_1**" "030_4211" "05391" "4294" "19" "19" "18430")*

-

2

("00400001_1" "040M0516" "05391" "4294" "4" "4" "11225")

("00400001_1" "040M0927" "05391" "4294" "8" "8" "11648")

("00400001_1" "040M0927" "05391" "4294" "8" "8" "11649")

-

…

91

("280_7327_732" "280_7327" "05391" "4294" "35" "35" "21781")

("280_7327_732" "280_7327" "05391" "4294" "35" "35" "21782")

-

92

("400_5309_531" "400_5309" "05391" "4294" "99" "99" "19569")

("400_5309_531" "400_5309" "05391" "4294" "99" "99" "19570")

-

Groups of profile scraps with equal name - 6 (no use of parameter FROM).

Involved scraps - 12 from 615.

Num_in_kr|From_kr|From_zakaz|Proekt|From_port|From_zap|Id_otxod

1

*("**009P0001_1**" "009P0001" "05391" "4294" "43" "43" "24095")*

*("**009P0001_1**" "009P0001" "05391" "4294" "87" "21" "24774")*

-

2

("009P0090_1" "009P0090" "05391" "4294" "38" "38" "25347")

("009P0090_1" "009P0090" "05391" "4294" "42" "42" "25331")

-

3

("009P0200_1" "009P0200" "05391" "4294" "19" "19" "29269")

("009P0200_1" "009P0200" "05391" "4294" "38" "38" "26967")

-

4

("012P0056_1" "012P0056" "05391" "4294" "37" "37" "22247")

("012P0056_1" "012P0056" "05391" "4294" "41" "41" "20622")

-

5

("038T0003_1" "038T0003" "05391" "4294" "24" "24" "19637")

("038T0003_1" "038T0003" "05391" "4294" "35" "35" "21298")

-

6

("080R0004_1" "080R0004" "05391" "4294" "25" "25" "19356")

("080R0004_1" "080R0004" "05391" "4294" "83" "19" "21499")

-

In the fourth part there are results of searching scraps having all 6 identic source nesting map parameters (scrap name, map name, order name, project name, project portion number, launch number). Sample:

Groups of coincident sheet scraps - 49 (with parameters FROM).

Involves scraps - 103 from 3655.

Num_in_kr|From_kr|From_zakaz|Proekt|From_port|From_zap|Id_otxod

1 ("00400001_1" "040M0927" "05391" "4294" "8" "8" "11648"), ID=11648,11649

2 ("01000018_3" "100_0785" "05391" "4294" "11" "11" "12010"), ID=12010,12011

…

48 ("280_7327_732" "280_7327" "05391" "4294" "35" "35" "21781"), ID=21781,21782

49 ("400_5309_531" "400_5309" "05391" "4294" "99" "99" "19569"), ID=19569,19570

No coincident profile scraps (by 6 parameters).

Date and time of completing calculatios are finalizing lsting:

10.07.2024 16:06:36.71

Execution time 0h:0':1.04"

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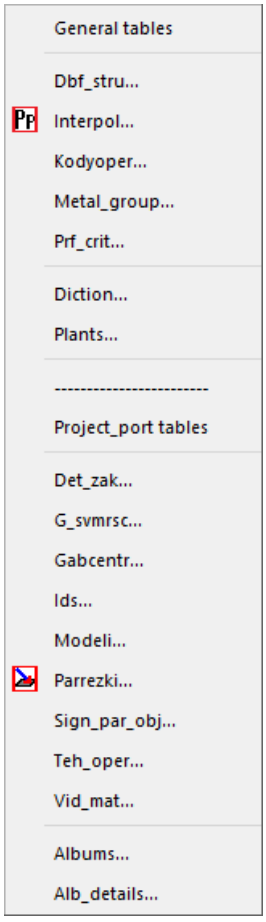
4.8. Auxiliary tables

Submenu **AUXILIARY** (dr. 61) is used for viewing auxiliary tables. Intended for system administrator or advanced users.



Drawing 61. Submenu **AUXILIARY**

Tables are divided into two parts: **General tables** (not connected to project_ports) and **Project_port tables** (in the folder of current project_port). Tables interpol.dbf (interpolators) and

parrezki.dbf (cutting parameters) can be not only viewed but edited too.

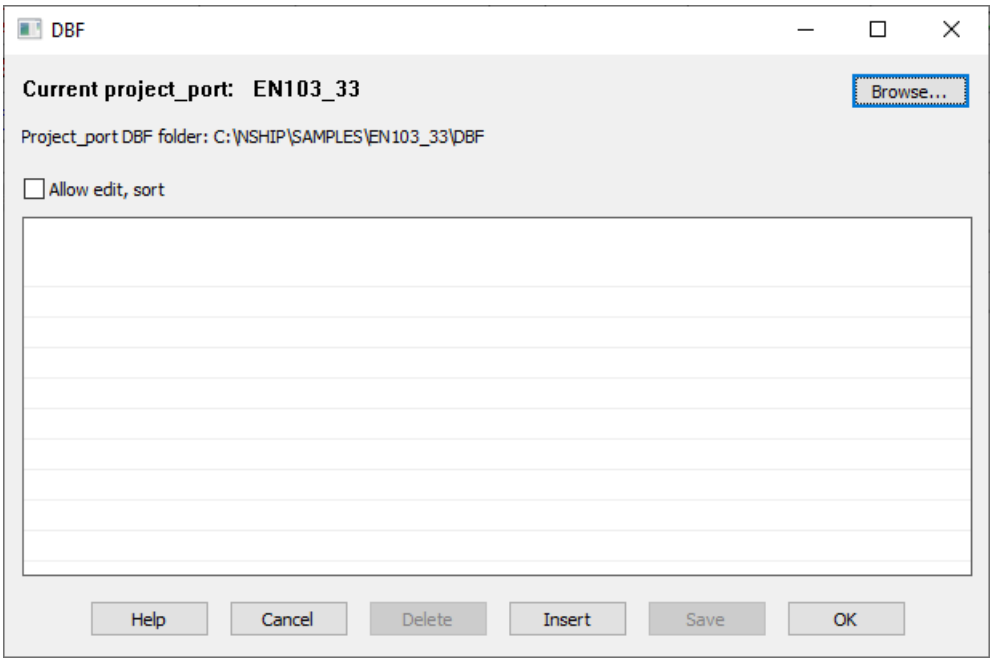
Detailed information for any DBF table can be viewed or changed with DBF editor.

4.9. DBF editor

Submenu **BDATA > DBF editor** contains items **without removed records** ( ) and **with removed records** ( ) to call iniversal DBF editor for exclusive changes in existing records in DBF tables. To be applied by system administrator and experienced users.

Mentioned commands differ only by handling deleted records: the first one shows only undeleted records, the second one shows deleted records too (marked with *).

Command **without removed records** opens dialog box **DBF** (dr. 62).



Drawing 62. Window **DBF**

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

Current project_port – name of the active project_port;

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

Project_port DBF folder – path to *DBF* folder of the current project_port;

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);

Delete – button to delete/restore record (button is enabled only in the mode **with removed records** with checked box **Allow edit, sort** and selection of a table line);

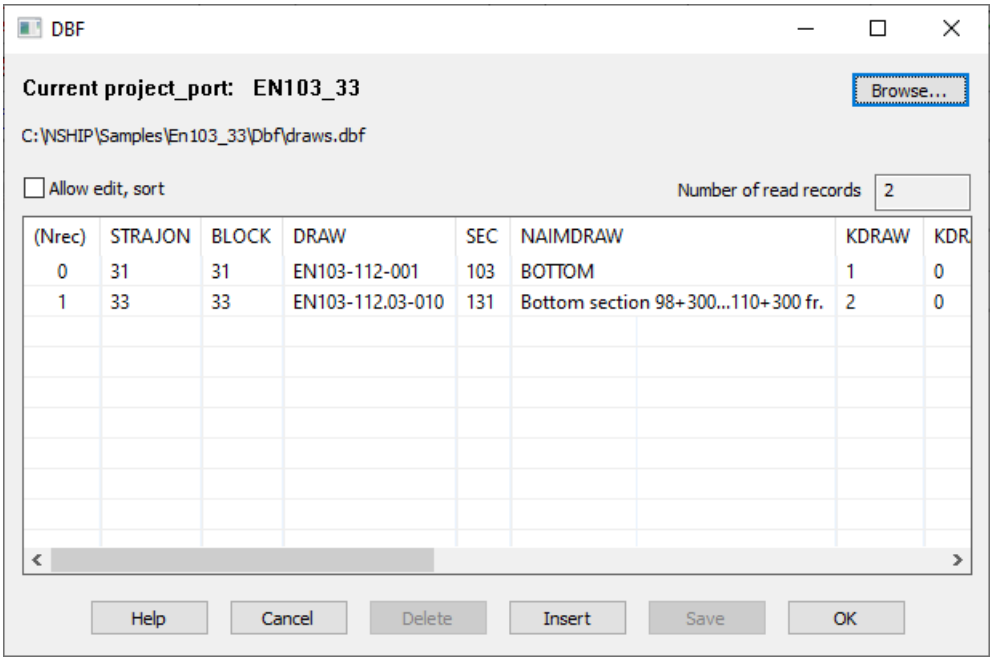
Insert – button to append new (empty) record at the end of table;

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

changes); results of button **Delete** are stored in DBF table just after deletion and do not require saving;

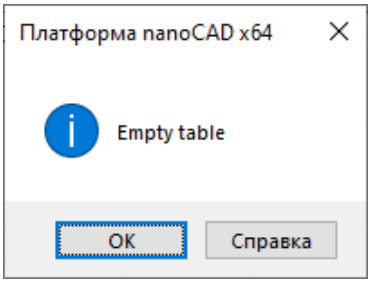
OK – exit button with automatic saving changes.

Work starts with pressing **Browse** button. An auxiliary window for selecting file with extension *.dbf*, while current project_port *DBF* folder is suggested. But user can select file from any other folder, not only from the suggested one. Contents of the selected file is being read into the tabular area of window **DBF** (dr. 63, on sample draws.dbf with project_port draws (specifications)).



Drawing 63. Window **DBF** with initial size

If selected DBF table is empty (has no data) then error message is issued (dr. 64).



Drawing 64. Empty table message

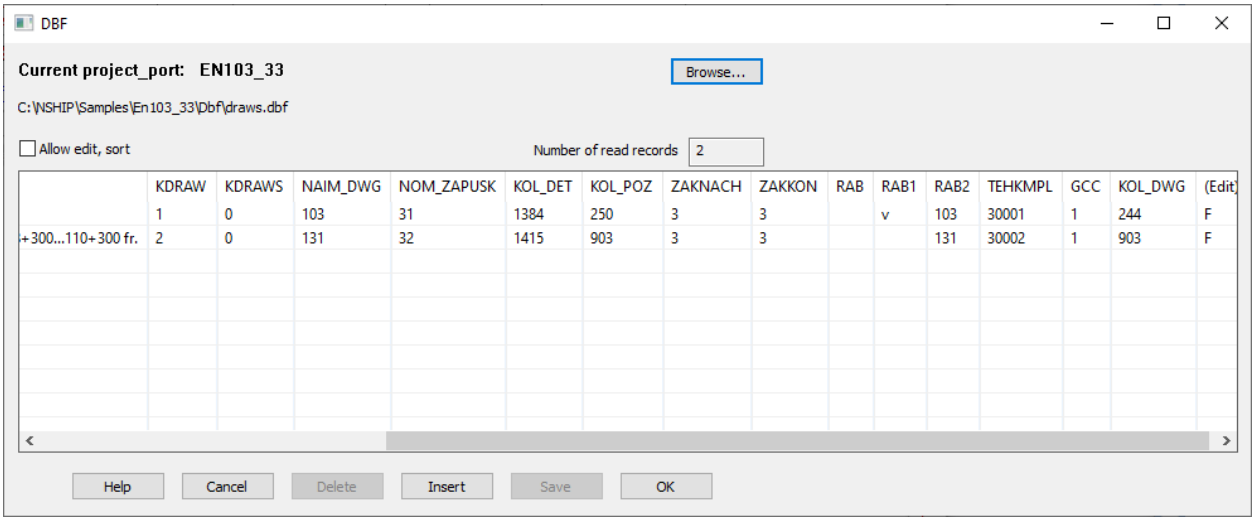
After reading file the window line **Project_port DBF folder** is replaced with the full name of the file. Additional line **Number of read records** shows quantity of read records (records marked as deleted are not included in it).

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

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. Using horizontal scrolling it is possible to see the columns that are hidden at the stsrt moment (dr. 65). Table includes two additional columns that are not present in the DBF file structure: **(Nrec)** and **(Edit)**.



Drawing 65. Window **DBF** with changed size

Start column **(Nrec)** displays internal record numbers (numbering begins from 0). If some numbers are missing then corresponding DBF records are marked as removed.

Note. After packing table deleted records are cleaned.

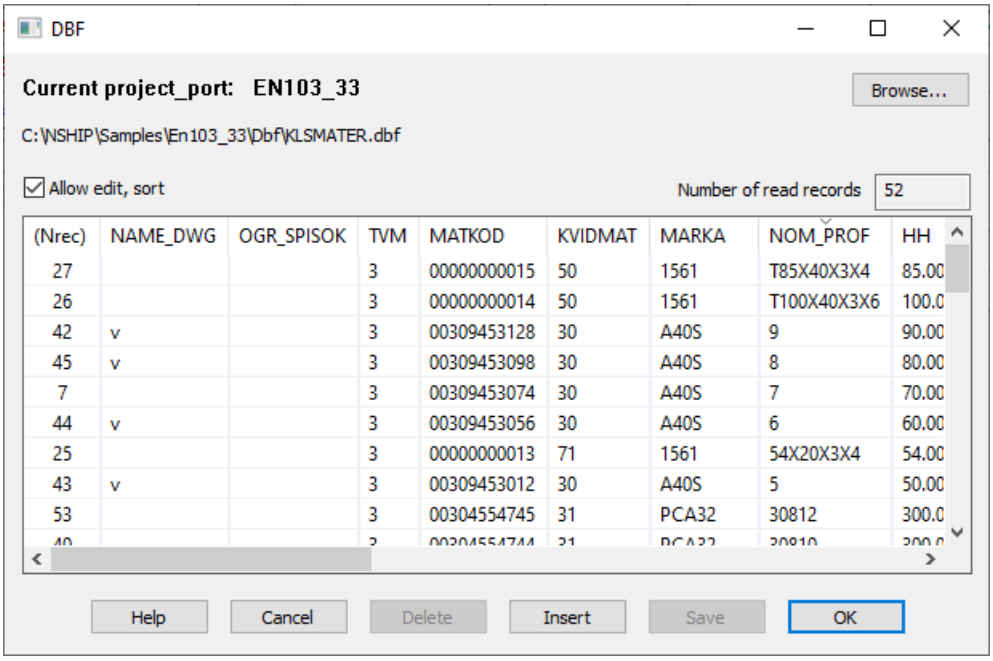
End column **(Edit)** shows flag of editing record: **F** (false) – record is unedited, **T** (true) – some record fields were changed and are not saved.

At the starting moment table has only view status. For launching edit option user must check box **Allow edit, sort**.

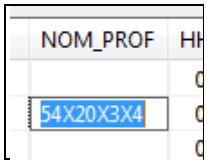
Column headers can be used for sorting records by data of the column that was left-clicked. There are two sort modes: ascending (by default) and descending. Repeat click on the header changes sort mode to an opposite one. Actual mode is marked by a small triangle in the header (dr. 66, descending sort by NOM_PROF, profile names).

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

For editing table cell one must twice click inside it. Cell borders and its value will be selected (dr. 67).

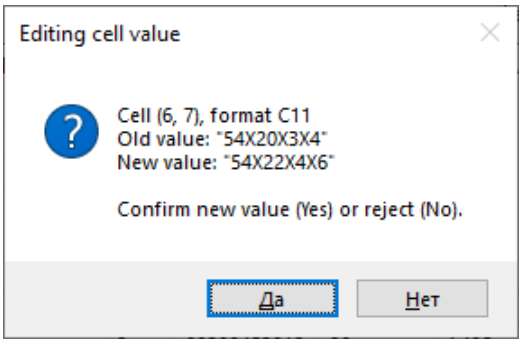


Drawing 66. Descending sort by values of NOM_PROF



Drawing 67. 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. 68):



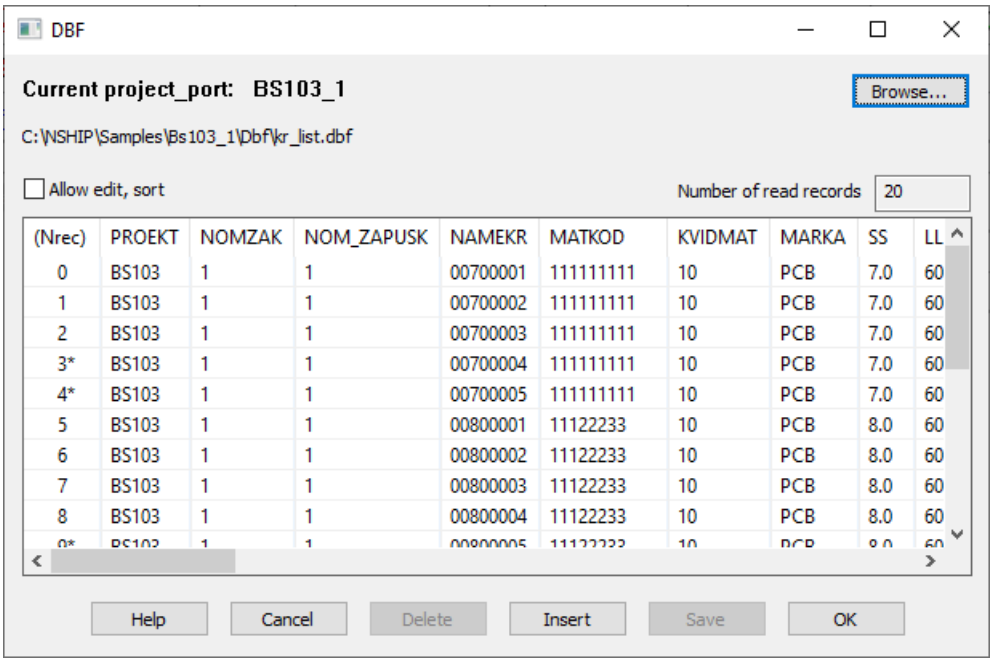
Drawing 68. Request for value change confirmation

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

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

To unsert a new record one should press button **Insert**. At the end of table a new (empty) table with spaces will be appended. It is necessary in the editing mode to fill all the fields or the key fields (main by sense) because empty record may cause incorrect work of some commands.

Command **with removed records** also calls dialog box **DBF**, but unlike window without removed records, in column **(Nrec**) can appear numbers with asterisk, they are corresponding to removed records (dr. 69).



Drawing 69. Window **DBF** with display of removed records

It is seen on the drawing that records with numbers 3, 4 are deleted (the rest deleted are not visible in this paert of window). Presence of removed records shows work history in the editing table process (this may be useful in some investigations).

Note. After packing table deleted records will disappear.

Activation of button **Delete** possible only when DBF table is opened in the mode **with removed records**. It is necessary to check box **Allow edit, sort** and click in the column **(Nrec)** on record to beselected.

Note. Click in any other column does not activate button **Delete**.

If press enabled button **Delete**, then selected record (if it was not removed), will acquire * as deletion mark. In command line ther will be a message on executed operation, e.g.: **Record 4 deleted.**

If selected record was earlier marked as deleted, then button **Delete** will clean deletion mark (*), and in the command line there will be corresponding message, e.g.: **Record 4 restored.**

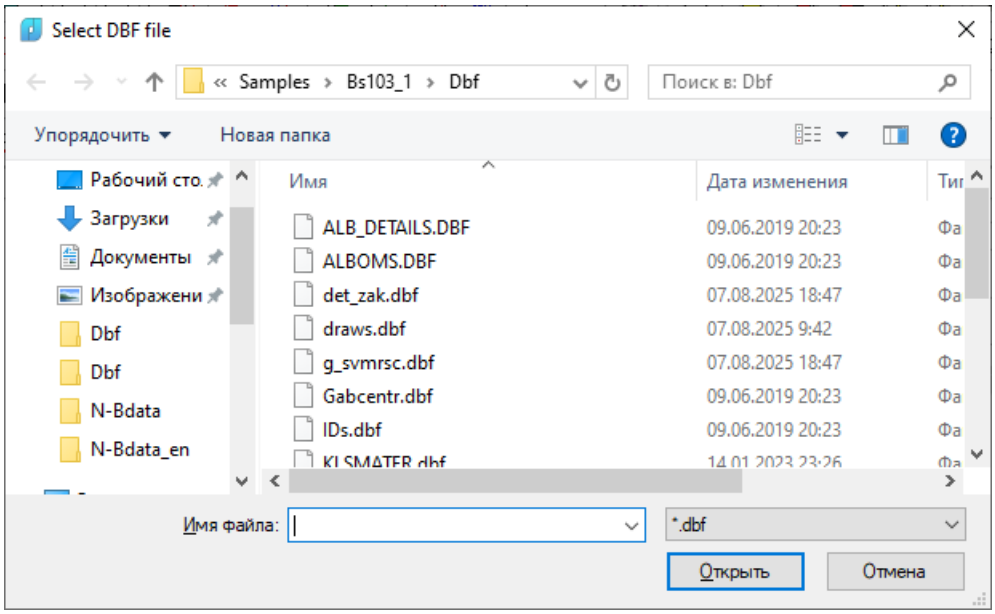
4.10. Pack DBF tables

During editing DBF table by program tools 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 tables** allows to analyze unused space inside DBF file and if necessary to run packing the table, with nullifyng space of unused

space. This reduces DBF file size. Command is created for system administrator or experienced users.

Command **Examine and pack DBF tables** opens window for selecting DBF file (dr. 70).



Drawing 70. Window **Select DBF file**

The default folder is *Dbf* folder of the current project_port. One can select any DBF 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:\NSHIP\Samples\Bs103_1\Dbf\modeli.dbf.

Total records 0.

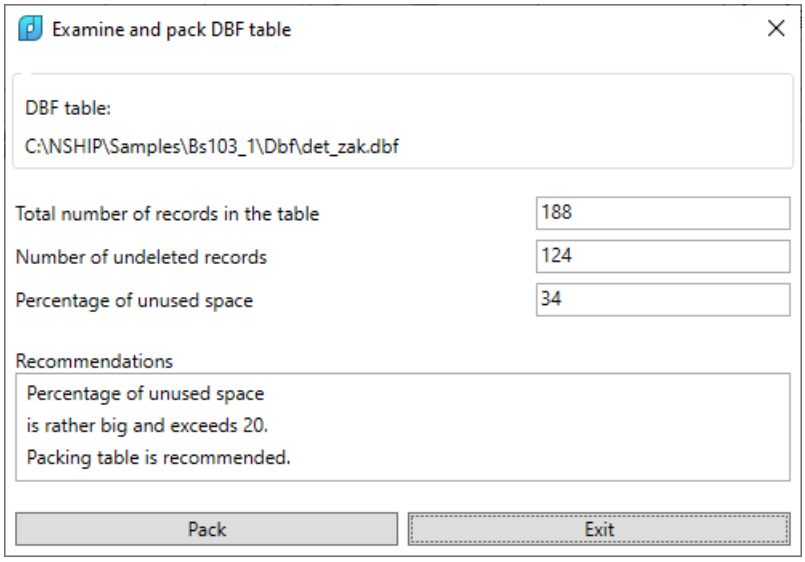
Undeleted records 0.

End of analysis.

If there are non-empty data records in the table then dialog box **Examine and pack DBF table** is opened (dr. 71).

Here 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 not required*. At the same time the button **Pack** is disabled.



Drawing 71. 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.

Packing table is recommended.

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 project_port into intermediate folder or from one project_port 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 project_port.

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

The following rule is applied for **overwriting** data during export and import: existing **DB records** with the same field names (part positions, draw names, model names, nesting map

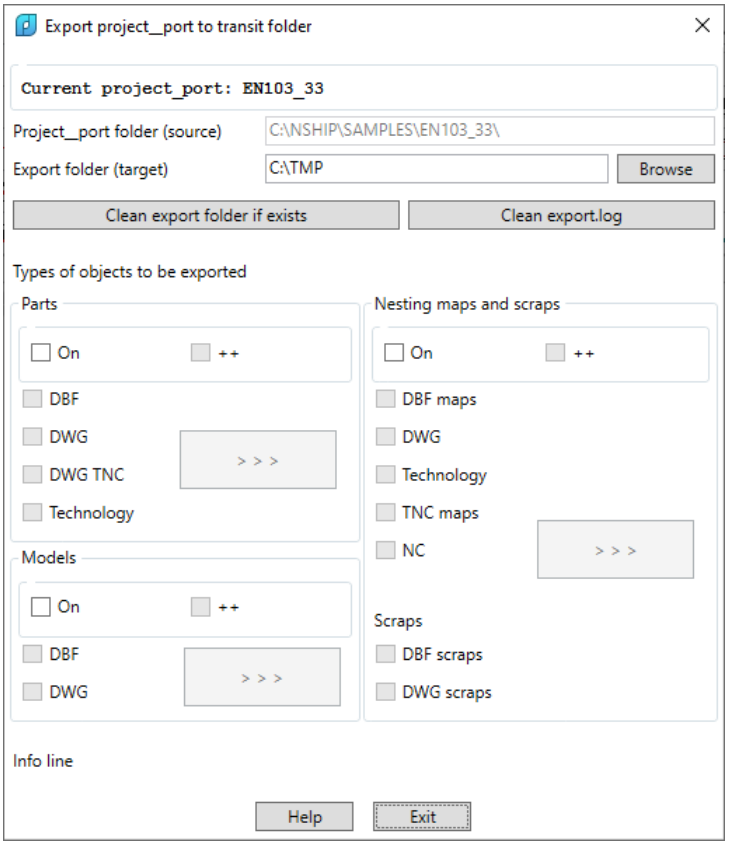
names, etc.) **are not overwritten**. It is connected first of all with dividing export into steps (data can become corrupted). But **files** *.dwg, *.sld, NC **are overwritten**.

5.1. Export settings

Export works only from the **current** project_port. It is necessary to select folder for receiving 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 **N-Ship** system. It contains all the necessary information on export volume, selected objects and found problems.

Command **Export** opens dialog box **Export project_port to transit folder** (dr. 72).



Drawing 72. Dialog box **Export project_port to transit folder**

Upper part of the window shows current project_port name and project_port folder with DB files. Data of this project_port 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**.

Attention! While manual (keyboard) input of path symbol \ is to be entered as \\ or / (nanoCAD problem).

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 needed 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 already exist there. To clear folder from previous contents one should press button **Clean export folder if exists**.

Note. Existing project_port 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 *NSHIP\Tmp* 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 project_port to transit folder** is occupied by area **Types of objects to be exported**. Area is divided into three subareas: **Parts**, **Models**, **Nesting maps and scraps**. 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 check its box (**Parts**, **Models** or **Nesting maps and scraps**).

All the three export types are discussed separately.

5.2. Export protocol. DB audit

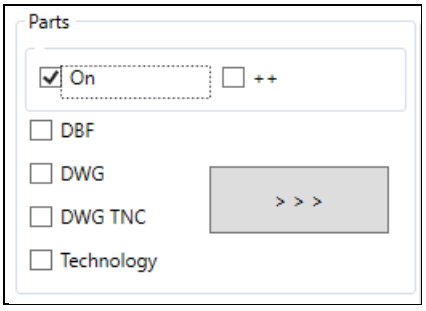
Protocol (log) file has standard name export.log and is formed in the subfolder *Tmp* inside system installation folder (e.g., *D:\NSHIP\Tmp\export.log*). Information from the protocol file can be useful while copying project_ports and to some extent to audit DB for its completeness, orphan links.

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 required information on draws (specifications), geometry (DWG files) of parts, TNCs (FPDs), manufacture technology.

To activate area **Parts** check the box **On** (dr. 73).



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

Export volume is ruled by checkboxes: **DBF**, **DWG**, **DWG TNC**, **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 checked):

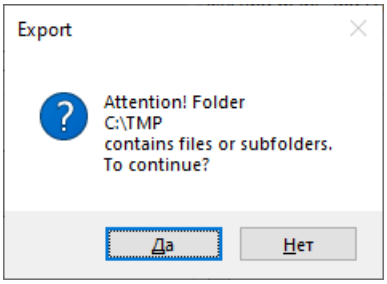
- **DBF** — copying records of marked part positions (table specp.dbf), corresponding draws (table draws.dbf), materials in use (table klsmater.dbf);

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

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

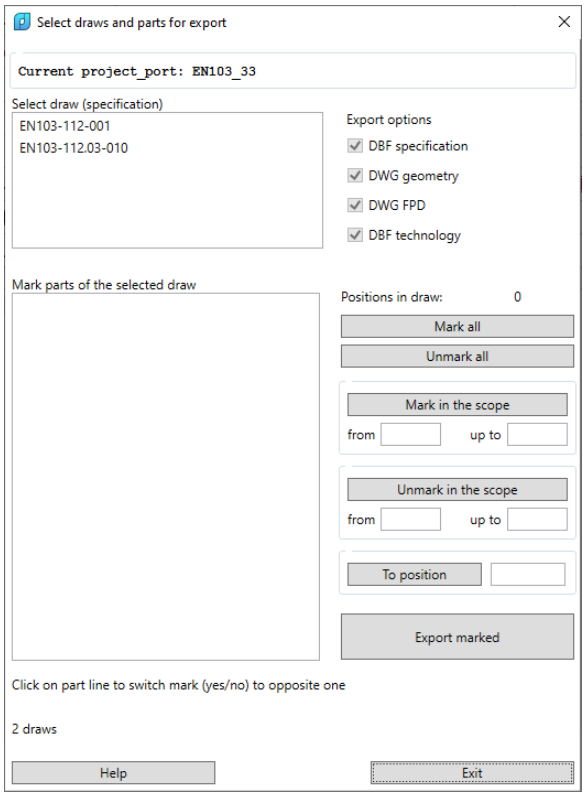
- **Technology** — copying records of technological operations attached for part positions manufacturing (table teh_oper.dbf), technological parameters for parts (table sign_par_obj.dbf), as well as records of draws and parts (even if option **DBF** is off).

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. 74):



Drawing 74. 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. 75).



Drawing 75. Dialog box **Select draws and parts for export**

At initial state info line shows message about quantity of draws in the current project_port. 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:

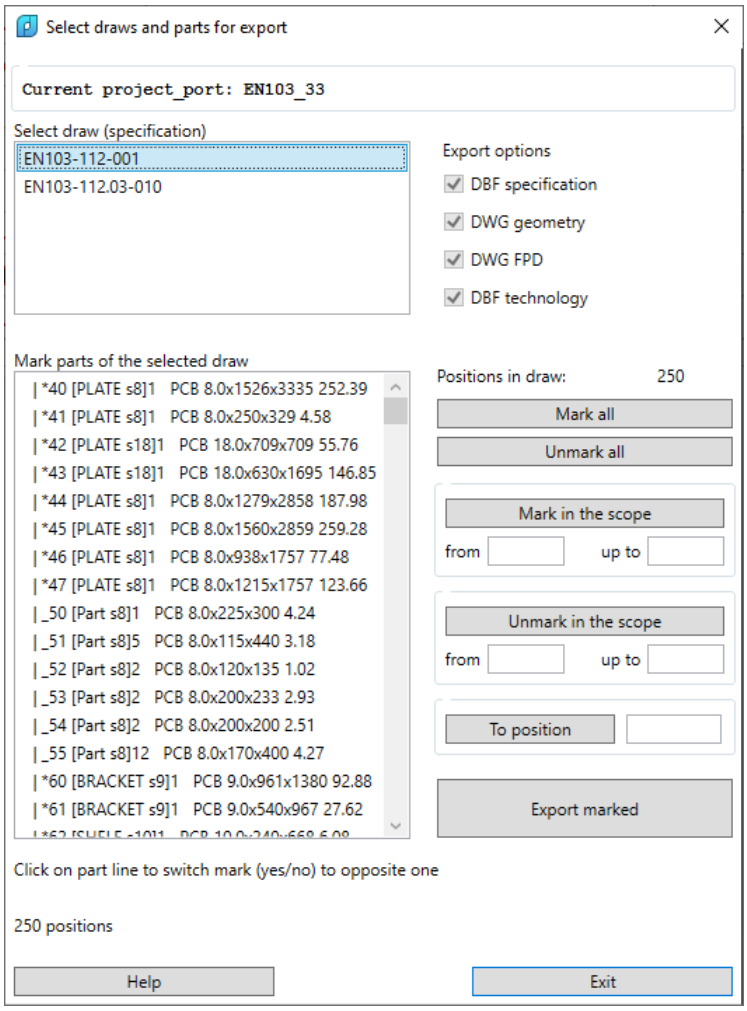
- list **Select draw (specification)**, to select draw;

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

- area **Export options**, reflects types of exported objects selected in the window **Export project_port to transit folder**;

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

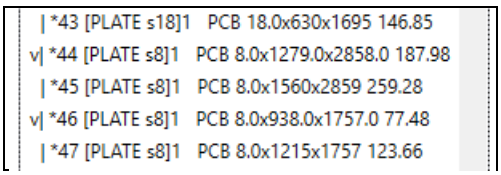
The first step is selection of one draw in the upper listbox. After that the lower listbox will display all the parts of the draw (dr. 76).



Drawing 76. Parts list for selected draw

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. 77).

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.



Drawing 77. Marks for positions 44 and 46

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.

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 user sets 1 and 49 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 49 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).

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 exports data for marked parts, adding corresponding data (on draw, materials, etc.) in the following sequence:

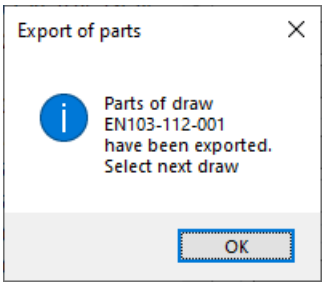
- if option **DBF** is set then there are copied data to the target DB tables draws.dbf (draw), klsmater.dbf (materials), specp.dbf (parts);

- 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 TNC** 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. 78). It invites to the next step of export.



Drawing 78. 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:\NSHIP\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 connected 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 project_port. 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 check box **On** in the dialog box **Export project_port to transit folder** (dr. 79).

Drawing 79. Area **Models** (after activation)

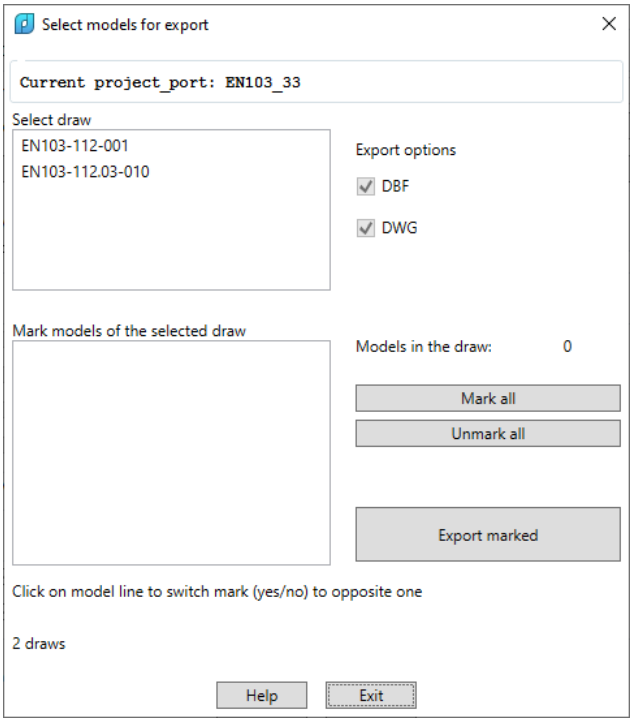
Export volume is ruled by checkboxes: **DBF** and **DWG**. Checkbox **++** (at the right) switches both checkboxes on/off at once. Checkboxes designation is to choose types of objects to be exported (at least one must be set):

- **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. User must select a way of work continuation.

If **Yes** (Да) then next window is opened (dr. 80).



Drawing 80. Dialog box **Select models for export**

At the initial state of the window the info line displays message with number of draws in the current project_port. 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:

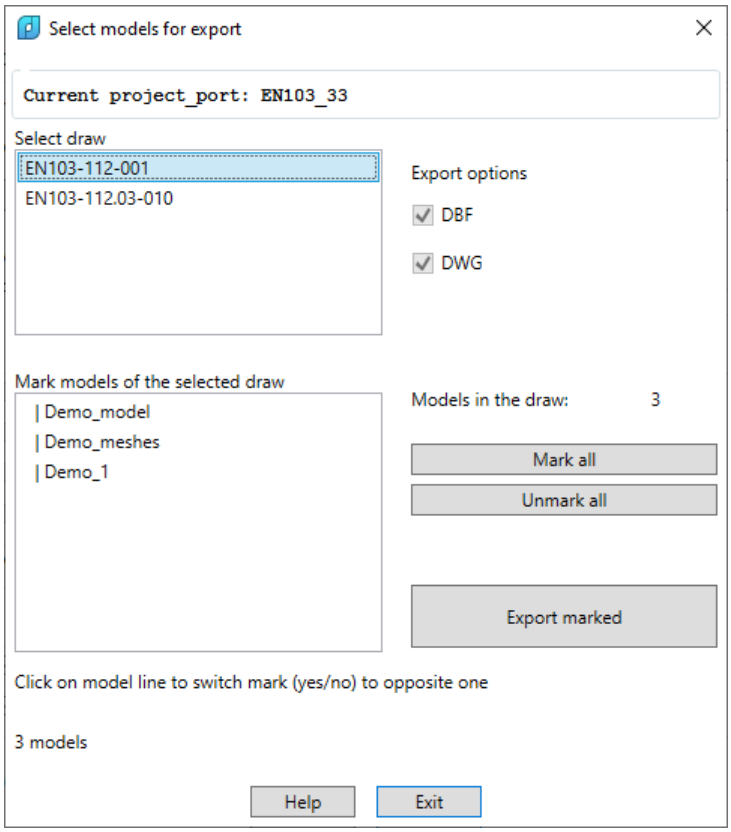
- listbox **Select draw**, to select a draw;

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

- area **Export options**, reflects types of exported objects selected in dialog **Export project_port to transit folder**;

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

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. 81).



Drawing 81. 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 mark at the beginning (symbol ‘v’).

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 **Export marked**. If later you

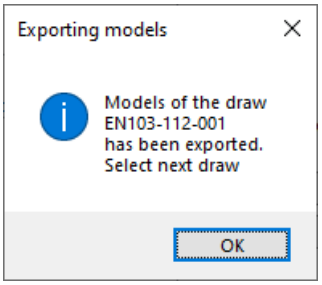
will find that some models were missed (not marked) then you can export them separately for the same draw at the next step.

Program runs data export in the following sequence:

- if option **DBF** is checked 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 is on dr. 82.



Drawing 82. 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 project_port). 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 **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 dur-

ing 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*

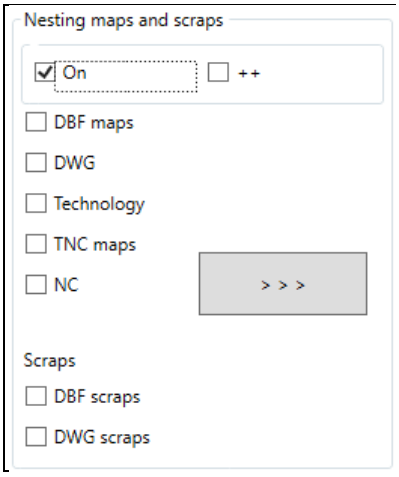
Copied MODEL\Demo_SERVIS.dwg

5.7. Export of nesting maps

This export mode is applied when user wants to transfer data of selected nesting maps for the current project_port. 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 help sense because data are exported into a new folder *Scraps* (in real life scraps table is not connected with a project_port). 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 and scraps** it is necessary to check box **On** (dr. 83).



Drawing 83. Area **Nesting maps and scraps** (after activation)

Volume of export data is defined by checkboxes: **DBF maps**, **DWG**, **Technology**, **TNC 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**, copying DWG 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);

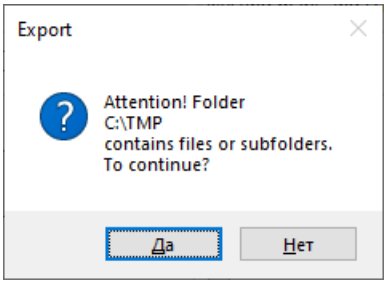
- **TNC maps**, copying DWG files with TNC documents of marked nesting maps;

- **NC**, copying files of NC programs created for marked maps;

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

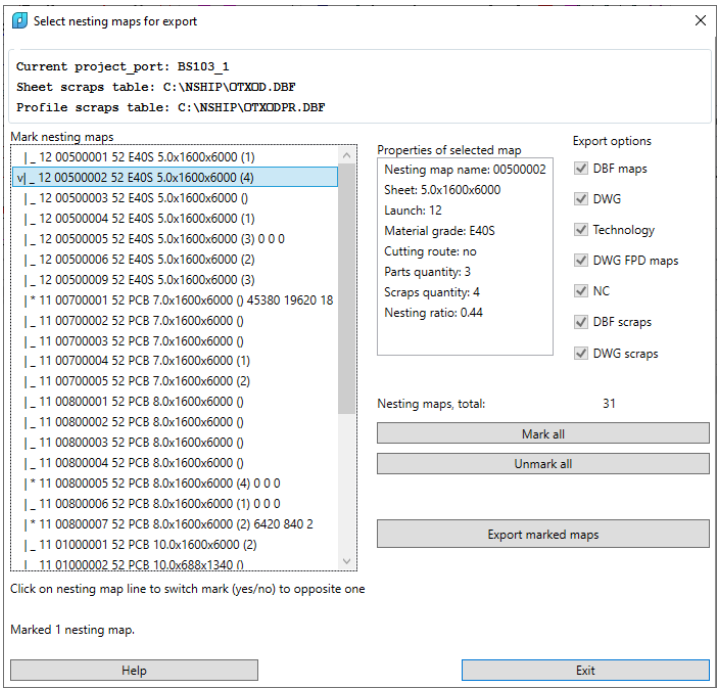
- **DWG scraps**, copying DWG files with geometry of non-rectangular scraps (if scraps of this type are applied in maps); this option is reference only.

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. 84).



Drawing 84. Warning about existence of files and subfolders

If **No** (Нет) then user will be returned to the dialog **Export project_port 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. 85).



Drawing 85. Dialog box **Select nesting maps for export**

At initial state info line shows message about total quantity of maps in the current project_port (e.g. *10 nesting maps*). User must mark maps to be exported and with button **Export marked maps** start process of copying these maps.

Here is contents of the dialog box:

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

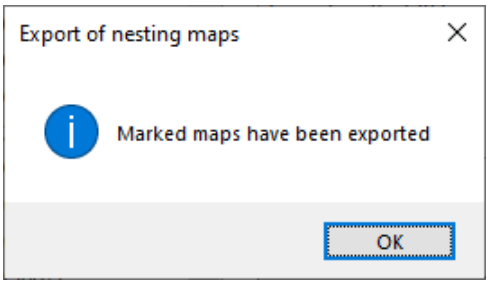
- area **Properties of selected map**, shows parameters of selected map;

- area **Export options**, shows types of exported objects selected in the window **Export project_port to transit folder**;

- 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 **Export marked maps**. On export finish message is opened (dr. 86).



Drawing 86. 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 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** is set then maps DWG and SLD (if exist) 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 **TNC 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 project_port 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 project_port). 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.

5.8. Messages on nesting maps export process

Information on marked nesting maps after clicking **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:\NSHIP\SAMPLES\EN103_1\ --------

Options: DBF_maps=1 DWG,SLD=1 Technology=1 TNC_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.

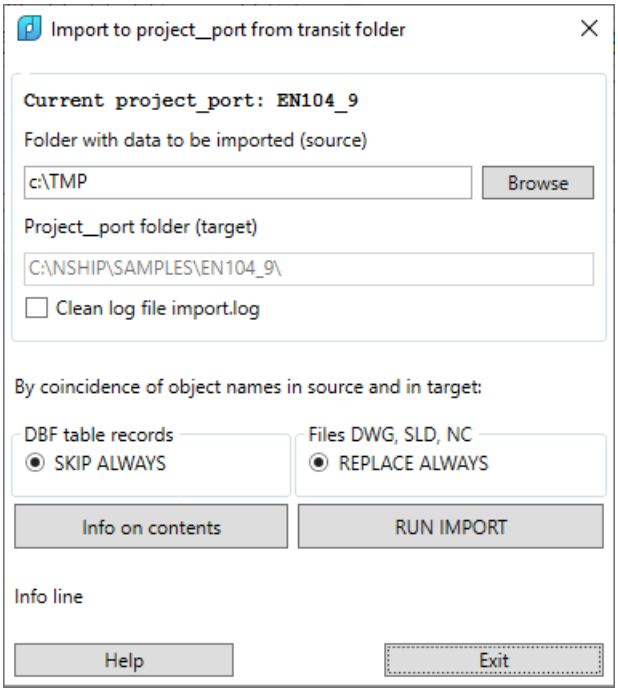
Attention! Scraps export is for help only (due to specific status of table otxod.dbf and using in several projects at once).

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 project_port. It is possible to use old project_port instead of transit folder, if a project_port is to be copied with purpose of uniting project_ports.

Note. To import materials into current project_port use dialog box **View and edit materials table**.

First of all target project_port must be set as current. Next command **Import** must be run from drop-down menu BDATA. Command opens dialog box **Import to project_port from transit folder** (dr. 87).



Drawing 87. 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.

Note! While manual (keyboard) input of path symbol \ sjould be entered as \\ or / (nanoCAD problem).

Data in the source folder must be created earlier with valid project_port subfolders structure and valid project_port files location (DBF tables, DWG files, NC programs). The structure created by **Export** command is valid and coincides with project_port data structure created by new project_port command.

In the field **Project_port folder (target)** there is shown as reference path to current project_port folder. It cannot be changed in this dialog box (only with project_port 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 **N-Ship** root folder. By default all the import information is appended to the end of protocol file. If to check box **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**).

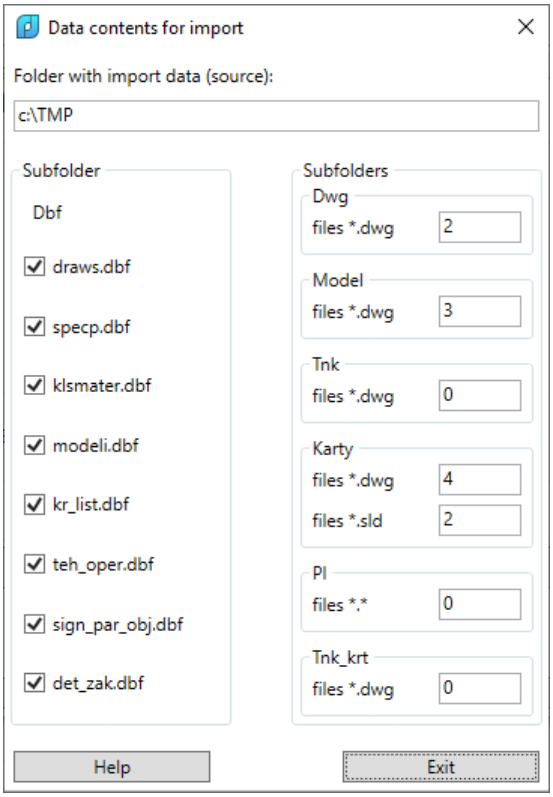
Unlike export operation the command **Import** has no opportunity to filter content of imported data. Everything from transit (source) folder is being copied.

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, NC are replaced in the target project_port even there were identic files before import.

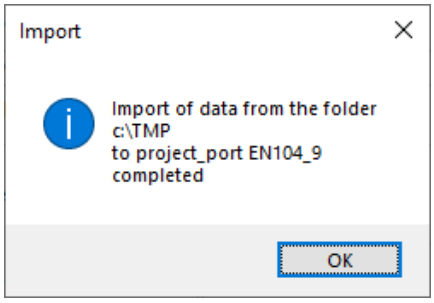
With button **Info on contents** use can estimate data volume prepared for import in the source folder. After pressing button there opens dialog box **Data contents for import** (dr. 88).



Drawing 88. Dialog box **Data contents for import**

In the left column by checkboxes there is 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 project_port folder, it is located outside project_ports).

For immediate launch of import operation in the dialog box **Import to order from transit folder** user must press button **RUN IMPORT**. On end of import a message is generated (dr. 89).



Drawing 89. 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" "Dwg" "Karty" "Model" "Pl" "Scraps" "Tnk" "Tnk_krt")

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 part of the protocol deals with nesting maps, for example:

Copying nesting maps to kr_list.dbf

Nesting map 00700001 has been added

Nesting map P0000002 has been added

Nesting map 00500002 already exists in the target kr_list.dbf. Skipped

-

Number of map parts lists: 7

-

Copying lists of nesting map parts to det_zak.dbf

Part mark 4006 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 555 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 554 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 460 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 436 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 436 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 446 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 446 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 4007 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 404 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 404 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 240 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 263 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Part mark 247 (old KDRAW=1, new KDRAW=4) to map 00700001 has been added

Parts list of map 00700001 has been imported

Part mark 427 (old KDRAW=2, new KDRAW=5) to map P0000002 has been added

Parts list of map P0000002 has been imported

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

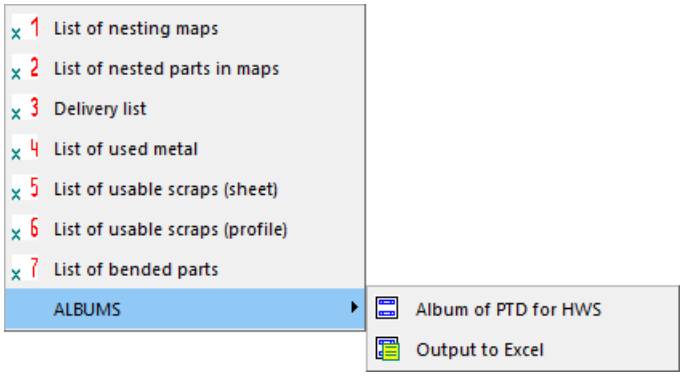
-

*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

Submenu **DOCUMENTS** (dr. 90) 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 90. Submenu **DOCUMENTS**

Commands use MS Excel version that is marked as working. It must be marked in the special INI-file NSHIP\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** includes the following commands and submenu:

- **List of nesting maps**;
- **List of nested parts in maps**;
- **Delivery list**;
- **List of used metal**;
- **List of usable scraps (sheet)**;
- **List of usable scraps (profile)**;
- **List of bended parts**;
- **ALBUMS**.

Documents are calculated for the current project_port, saved in files with extension .xls located in folder *Doc* of this project_port (e.g. *Samples\EN103_33\Doc*). For security each new file gets number by one greater than maximal number of the XLS files with the same name (excluding number) existing in this folder (e.g. EN103_33_test3e_Sheet_nesting_maps_list_8.xls). Calculation is run without visualizing Excel itself. On finish a message about file creation is generated.

Commands of submenu **ALBUMS** create albums per launch and are discussed hereinafter.

6.1. List of nesting maps

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

Document is being formed in Excel workbook file named *Sheet_nesting_maps_list*, adding prefix with project_port and order name, and suffix *_N.xls*, where N is file number (1 or greater). End message is output to command line, e..g.:

Created file C:\NSHIP\SAMPLES\BS103_1\Doc\EN103_33_test3e_Sheet_nesting_maps_list_4.xls.

While running the command is producing process information into command line, e.g.:

Create nesting maps list...

Problem. The following maps included in KR_LIST table but they are missing in DET_ZAK table.

("00500006" "00800030" "00800033"). Excluded from calculation.

Number of nesting maps output to the workbook = 11

Number of Excel worksheets in the document = 3

Nesting maps output:

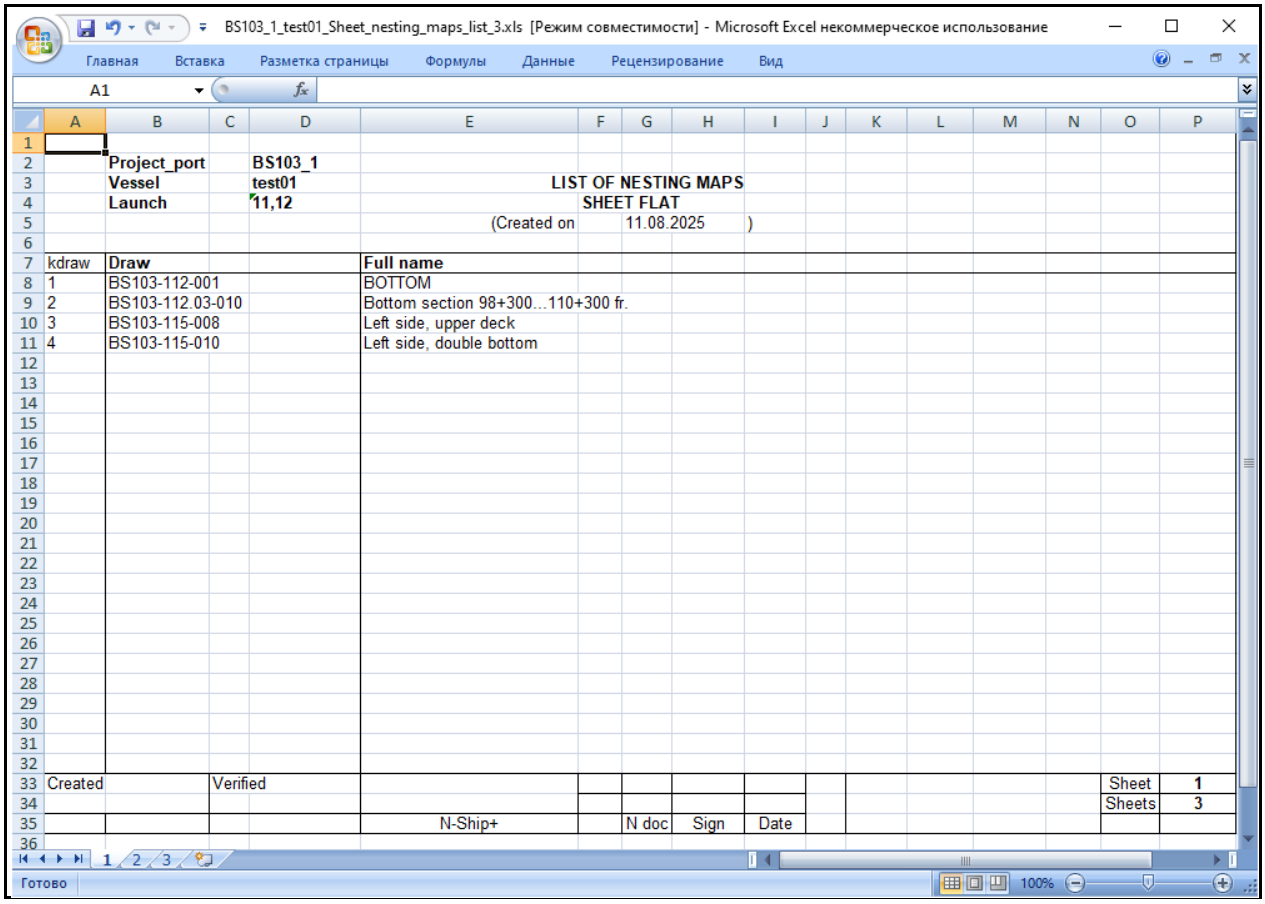
00400005 00700001 00700002 00700003 00700004 00700005 00800001 00800002 00800003 00800004 00800005 00800034 00800035 00800036 00800037 00800038 01000001

01000002 01000003 01000004

Created file C:\NSHIP\SAMPLES\BS103_1\Doc\BS103_1_test01_Sheet_ nesting_maps_list_3.xls.

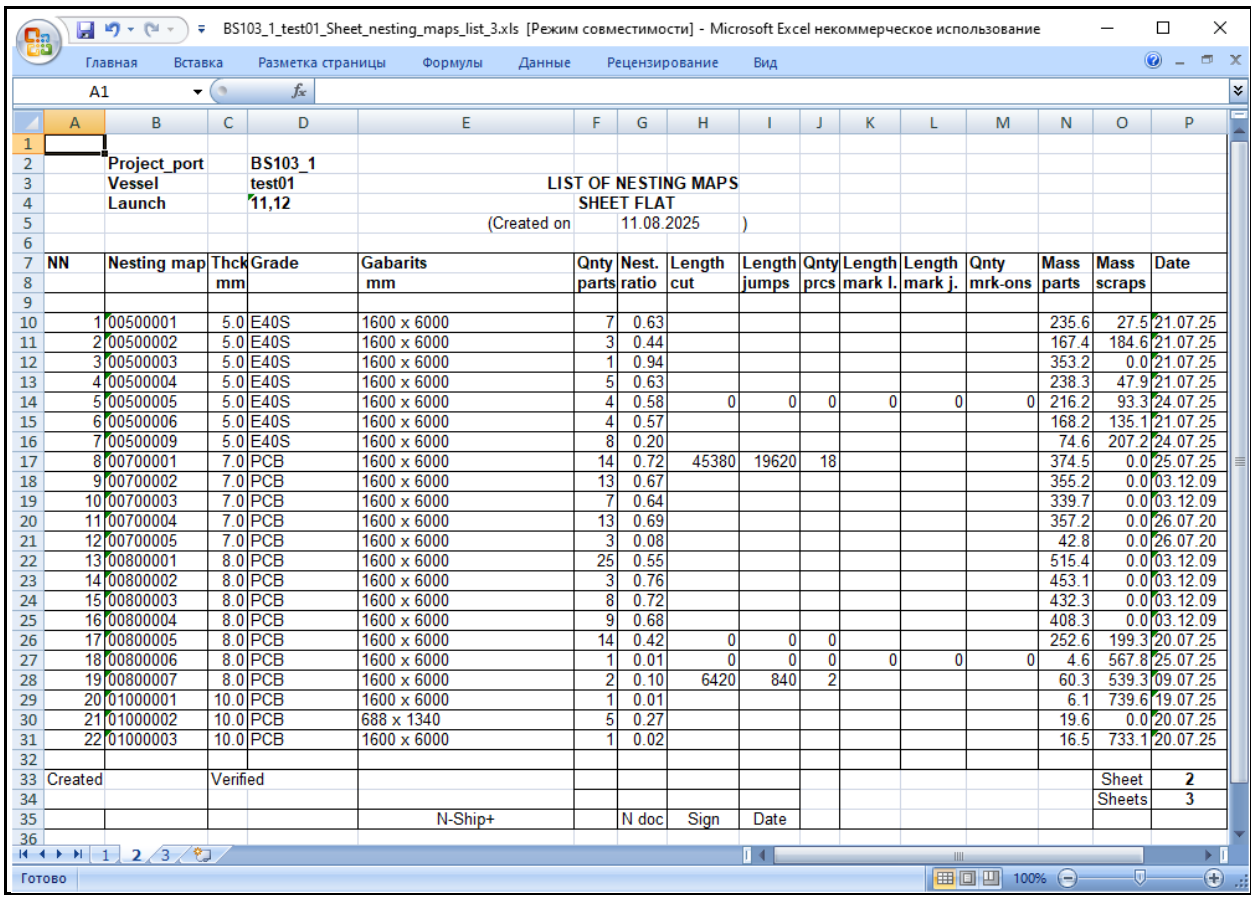
Note. Problem message can appear only in case of finding discrepancies between tables kr_list.dbf and det_zak.dbf. The situation requires DB data analysis.

Dr. 91–93 show sample worksheets of created document.



Drawing 91. 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).



BS103_1_test01_Sheet_nesting_maps_list_3.xls [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид

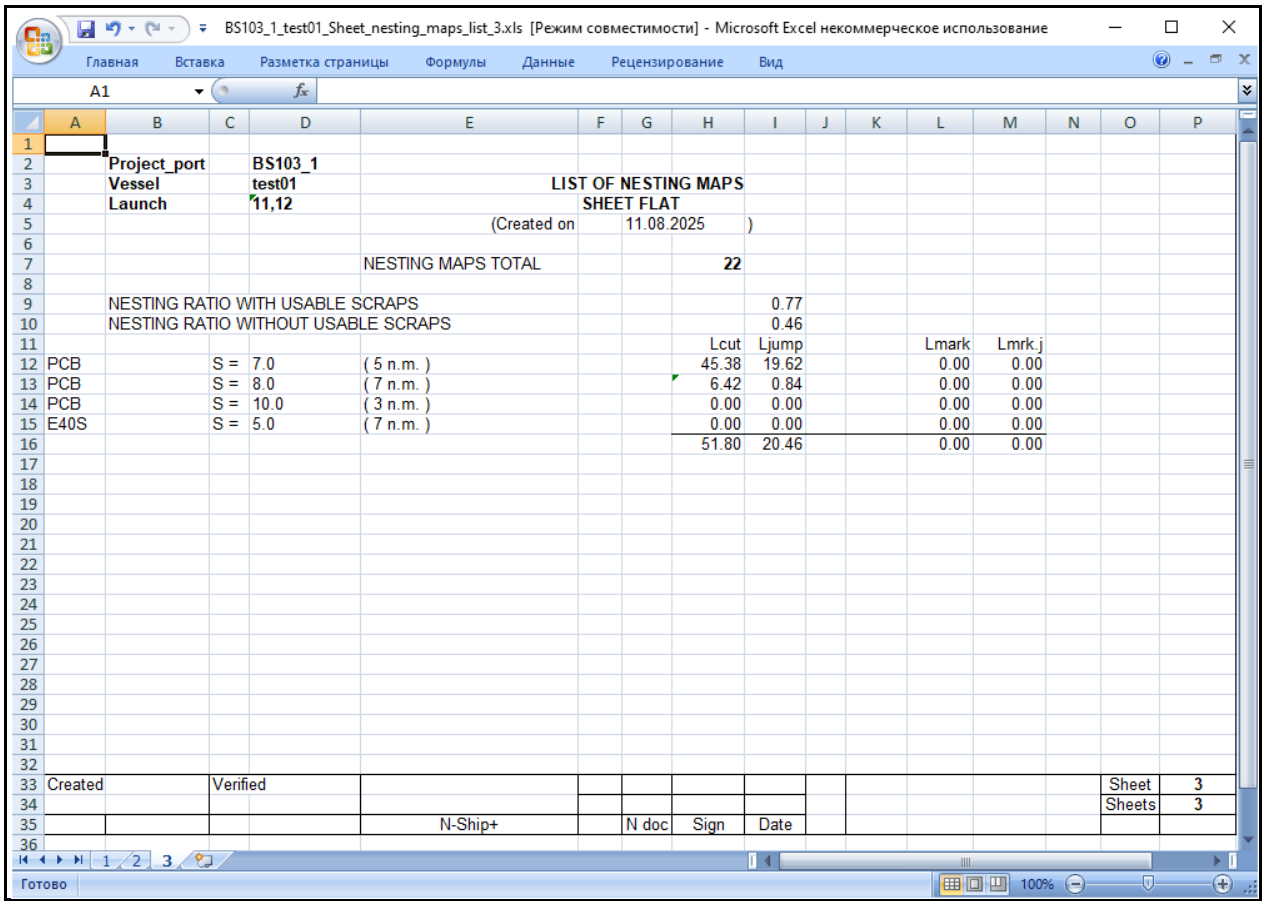
A1

	Project_port		BS103_1												
	Vessel		test01			LIST OF NESTING MAPS									
	Launch		11,12			SHEET FLAT									
					(Created on	11.08.2025	)								
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	00500001	5.0	E40S	1600 x 6000	7	0.63							235.6	27.5	21.07.25
2	00500002	5.0	E40S	1600 x 6000	3	0.44							167.4	184.6	21.07.25
3	00500003	5.0	E40S	1600 x 6000	1	0.94							353.2	0.0	21.07.25
4	00500004	5.0	E40S	1600 x 6000	5	0.63							238.3	47.9	21.07.25
5	00500005	5.0	E40S	1600 x 6000	4	0.58	0	0	0	0	0	0	216.2	93.3	24.07.25
6	00500006	5.0	E40S	1600 x 6000	4	0.57							168.2	135.1	21.07.25
7	00500009	5.0	E40S	1600 x 6000	8	0.20							74.6	207.2	24.07.25
8	00700001	7.0	PCB	1600 x 6000	14	0.72	45380	19620	18				374.5	0.0	25.07.25
9	00700002	7.0	PCB	1600 x 6000	13	0.67							355.2	0.0	03.12.09
10	00700003	7.0	PCB	1600 x 6000	7	0.64							339.7	0.0	03.12.09
11	00700004	7.0	PCB	1600 x 6000	13	0.69							357.2	0.0	26.07.20
12	00700005	7.0	PCB	1600 x 6000	3	0.08							42.8	0.0	26.07.20
13	00800001	8.0	PCB	1600 x 6000	25	0.55							515.4	0.0	03.12.09
14	00800002	8.0	PCB	1600 x 6000	3	0.76							453.1	0.0	03.12.09
15	00800003	8.0	PCB	1600 x 6000	8	0.72							432.3	0.0	03.12.09
16	00800004	8.0	PCB	1600 x 6000	9	0.68							408.3	0.0	03.12.09
17	00800005	8.0	PCB	1600 x 6000	14	0.42	0	0	0				252.6	199.3	20.07.25
18	00800006	8.0	PCB	1600 x 6000	1	0.01	0	0	0	0	0	0	4.6	567.8	25.07.25
19	00800007	8.0	PCB	1600 x 6000	2	0.10	6420	840	2				60.3	539.3	09.07.25
20	01000001	10.0	PCB	1600 x 6000	1	0.01							6.1	739.6	19.07.25
21	01000002	10.0	PCB	688 x 1340	5	0.27							19.6	0.0	20.07.25
22	01000003	10.0	PCB	1600 x 6000	1	0.02							16.5	733.1	20.07.25
Created		Verified												Sheet	2
														Sheets	3
				N-Ship+		N doc	Sign	Date							

1 2 3

Готово 100%

Drawing 92. List of nesting maps (worksheet 2)



BS103_1_test01_Sheet_nesting_maps_list_3.xls [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид

A1

	Project_port		BS103_1												
	Vessel		test01			LIST OF NESTING MAPS									
	Launch		11,12			SHEET FLAT									
					(Created on	11.08.2025	)								
				NESTING MAPS TOTAL			22								
	NESTING RATIO WITH USABLE SCRAPS							0.77							
	NESTING RATIO WITHOUT USABLE SCRAPS							0.46							
							Lcut	Ljump			Lmark	Lmrk.j			
PCB		S =	7.0	(5 n.m.)			45.38	19.62			0.00	0.00			
PCB		S =	8.0	(7 n.m.)			6.42	0.84			0.00	0.00			
PCB		S =	10.0	(3 n.m.)			0.00	0.00			0.00	0.00			
E40S		S =	5.0	(7 n.m.)			0.00	0.00			0.00	0.00			
							51.80	20.46			0.00	0.00			
Created		Verified												Sheet	3
														Sheets	3
				N-Ship+		N doc	Sign	Date							

1 2 3

Готово 100%

Drawing 93. 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.

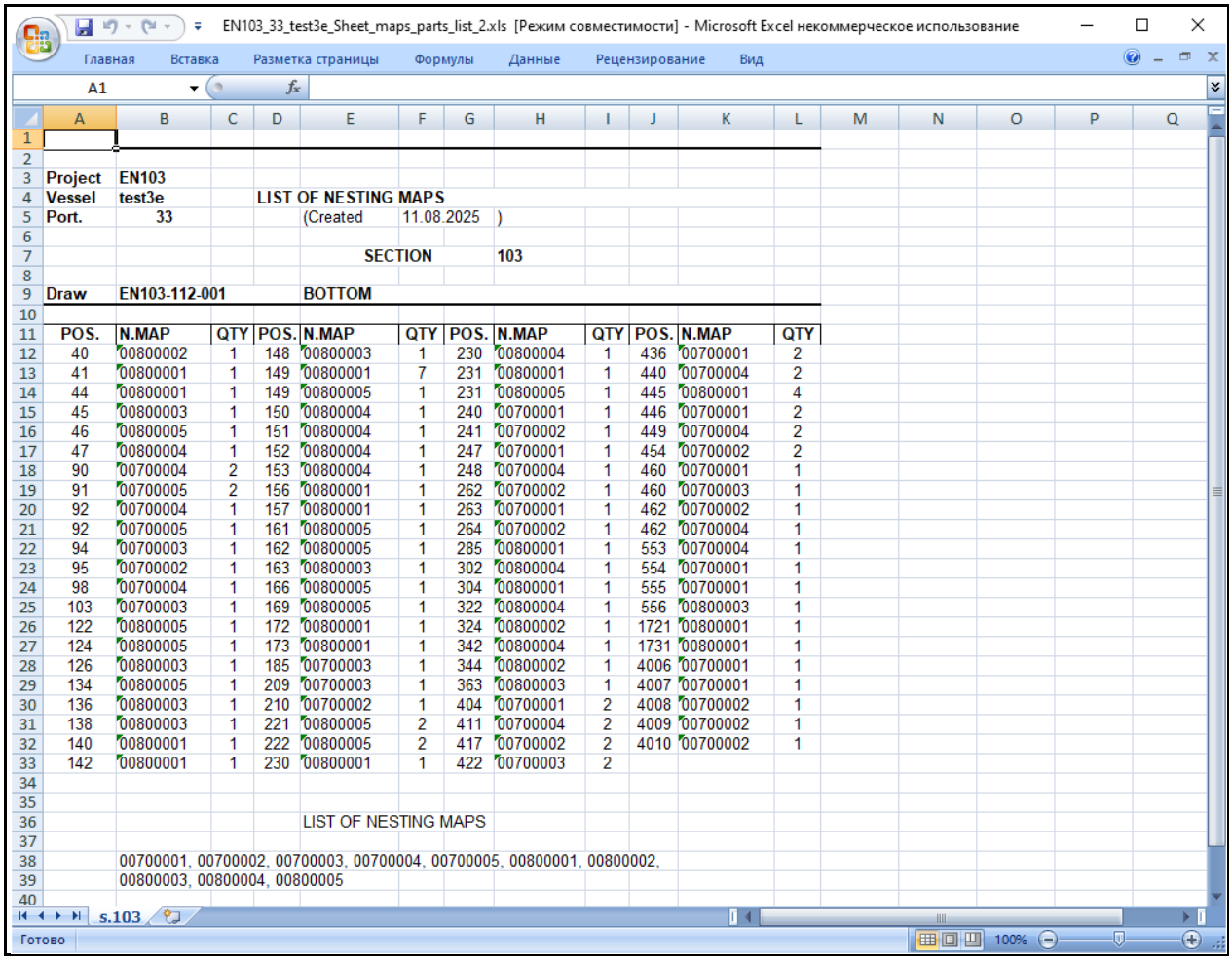
After that there are summary data by material grades and thicknesses, including cutting kerf route length (switched on and off), by lengths of marking tool route. Under the horizontal line there are summary data for cutting and marking of the current project_port.

6.2. List of nested parts in maps

This calculation is run with button [x 2] 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 *Sheet_maps_parts_list_N.xls*, where N is file number defined programmatically and not coinciding with number of any similar file in the folder *Doc*. Prefix of portion_port and order added.

On dr. 94 there is a sample document.



EN103_33_test3e_Sheet_maps_parts_list_2.xls [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид

A1

Project	EN103										
Vessel	test3e		LIST OF NESTING MAPS								
Port.	33			(Created	11.08.2025	)					
					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	148	00800003	1	230	00800004	1	436	00700001	2
41	00800001	1	149	00800001	7	231	00800001	1	440	00700004	2
44	00800001	1	149	00800005	1	231	00800005	1	445	00800001	4
45	00800003	1	150	00800004	1	240	00700001	1	446	00700001	2
46	00800005	1	151	00800004	1	241	00700002	1	449	00700004	2
47	00800004	1	152	00800004	1	247	00700001	1	454	00700002	2
90	00700004	2	153	00800004	1	248	00700004	1	460	00700001	1
91	00700005	2	156	00800001	1	262	00700002	1	460	00700003	1
92	00700004	1	157	00800001	1	263	00700001	1	462	00700002	1
92	00700005	1	161	00800005	1	264	00700002	1	462	00700004	1
94	00700003	1	162	00800005	1	285	00800001	1	553	00700004	1
95	00700002	1	163	00800003	1	302	00800004	1	554	00700001	1
98	00700004	1	166	00800005	1	304	00800001	1	555	00700001	1
103	00700003	1	169	00800005	1	322	00800004	1	556	00800003	1
122	00800005	1	172	00800001	1	324	00800002	1	1721	00800001	1
124	00800005	1	173	00800001	1	342	00800004	1	1731	00800001	1
126	00800003	1	185	00700003	1	344	00800002	1	4006	00700001	1
134	00800005	1	209	00700003	1	363	00800003	1	4007	00700001	1
136	00800003	1	210	00700002	1	404	00700001	2	4008	00700002	1
138	00800003	1	221	00800005	2	411	00700004	2	4009	00700002	1
140	00800001	1	222	00800005	2	417	00700002	2	4010	00700002	1
142	00800001	1	230	00800001	1	422	00700003	2			

LIST OF NESTING MAPS

00700001, 00700002, 00700003, 00700004, 00700005, 00800001, 00800002, 00800003, 00800004, 00800005

s.103

Готово 100%

Drawing 94. List of parts used in maps

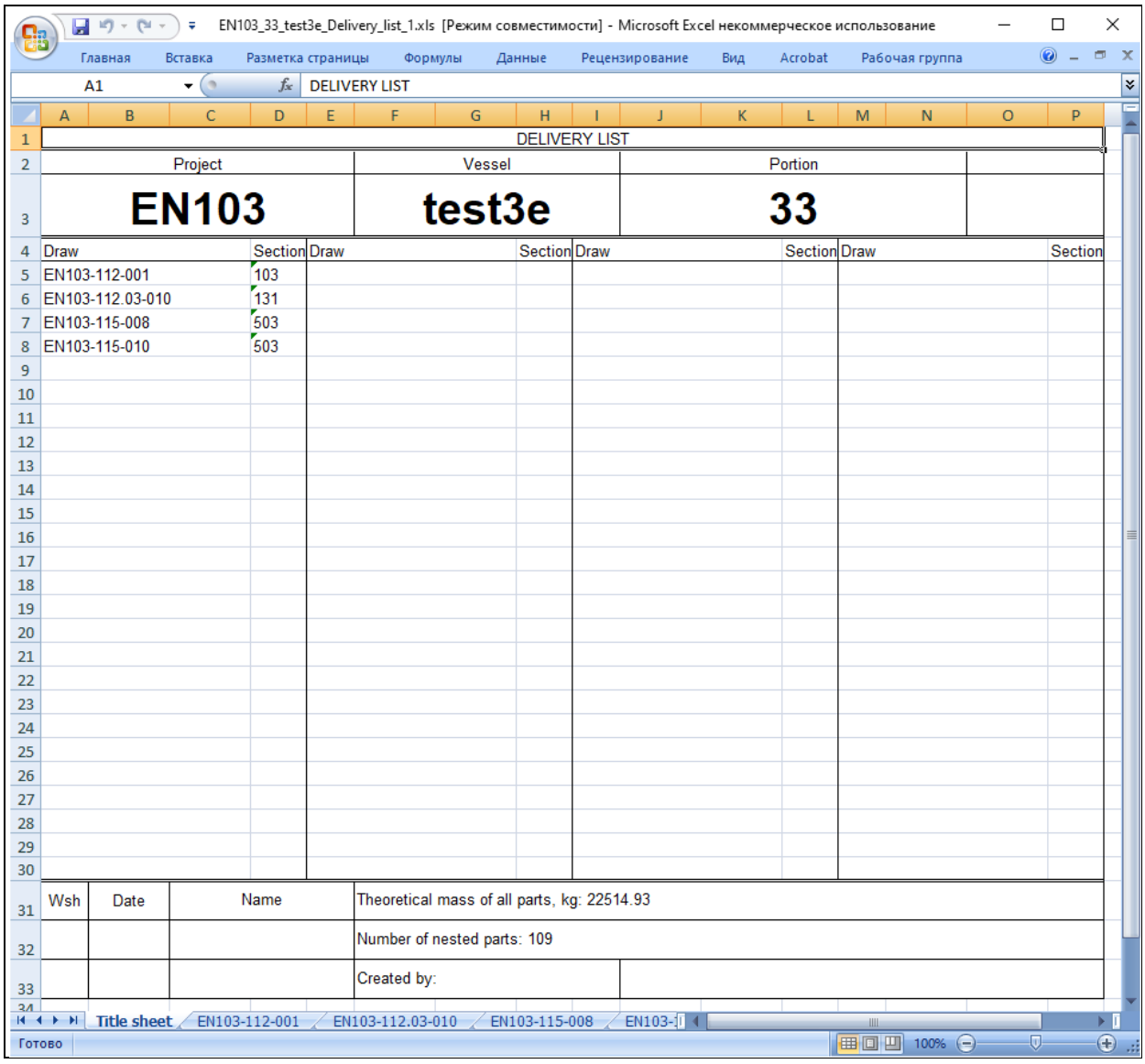
6.3. Delivery list

Delivery list contains part lists, by draws, with data of parts use in nesting maps, nodes, technological sets. Button [x 3] serves for launching this command.

Document is formed in Excel workbook file with title sheet and worksheets corresponding to draws of current project_port. The file name is *Delivery_list_N.xls*, where N is a file number defined programmatically and not coinciding with number of any similar file in the folder *Doc*. Name is added by prefix with project_port and order names.

On dr. 95–97 there is a sample of created delivery list workbook.

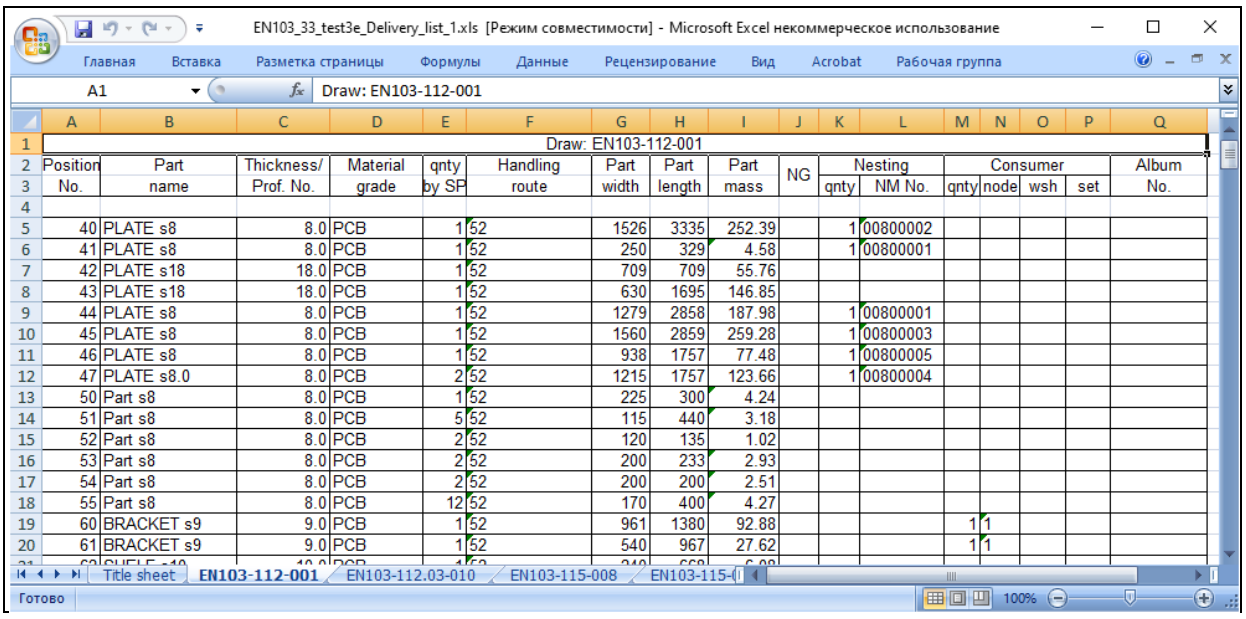
The title sheet (dr. 95) contains parameters of current project, order (vessel), portion, list of draws, summary mass of project_port parts and number of nested parts.



Drawing 95. Title sheet of delivery list

The main information is concentrated in the worksheets for draws (sample is on dr. 96–97). 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.



EN103_33_test3e_Delivery_list_1.xls [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид Acrobat Рабочая группа

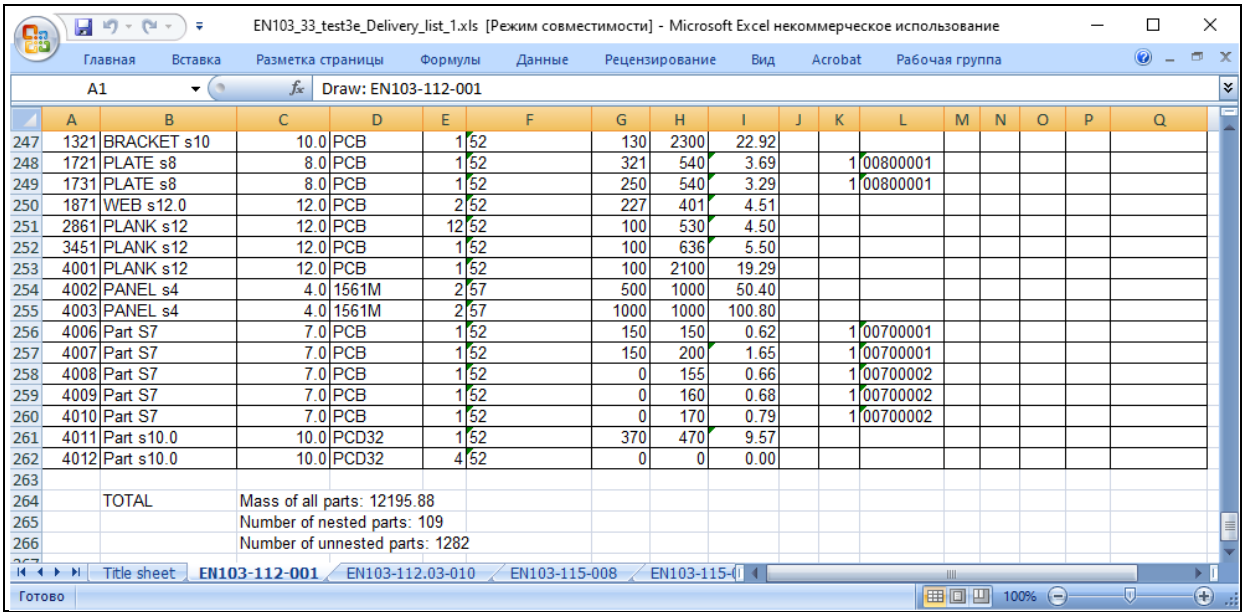
A1 Draw: EN103-112-001

	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	8.0	PCB	1	52	1526	3335	252.39		1	00800002					
6	41	PLATE s8	8.0	PCB	1	52	250	329	4.58		1	00800001					
7	42	PLATE s18	18.0	PCB	1	52	709	709	55.76								
8	43	PLATE s18	18.0	PCB	1	52	630	1695	146.85								
9	44	PLATE s8	8.0	PCB	1	52	1279	2858	187.98		1	00800001					
10	45	PLATE s8	8.0	PCB	1	52	1560	2859	259.28		1	00800003					
11	46	PLATE s8	8.0	PCB	1	52	938	1757	77.48		1	00800005					
12	47	PLATE s8.0	8.0	PCB	2	52	1215	1757	123.66		1	00800004					
13	50	Part s8	8.0	PCB	1	52	225	300	4.24								
14	51	Part s8	8.0	PCB	5	52	115	440	3.18								
15	52	Part s8	8.0	PCB	2	52	120	135	1.02								
16	53	Part s8	8.0	PCB	2	52	200	233	2.93								
17	54	Part s8	8.0	PCB	2	52	200	200	2.51								
18	55	Part s8	8.0	PCB	12	52	170	400	4.27								
19	60	BRACKET s9	9.0	PCB	1	52	961	1380	92.88				1	1			
20	61	BRACKET s9	9.0	PCB	1	52	540	967	27.62				1	1			

Title sheet | EN103-112-001 | EN103-112.03-010 | EN103-115-008 | EN103-115-

Готово 100%

Drawing 96. Worksheet for draw EN103-112-001 (first lines)



EN103_33_test3e_Delivery_list_1.xls [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид Acrobat Рабочая группа

A1 Draw: EN103-112-001

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
247	1321	BRACKET s10	10.0	PCB	1	52	130	2300	22.92								
248	1721	PLATE s8	8.0	PCB	1	52	321	540	3.69		1	00800001					
249	1731	PLATE s8	8.0	PCB	1	52	250	540	3.29		1	00800001					
250	1871	WEB s12.0	12.0	PCB	2	52	227	401	4.51								
251	2861	PLANK s12	12.0	PCB	12	52	100	530	4.50								
252	3451	PLANK s12	12.0	PCB	1	52	100	636	5.50								
253	4001	PLANK s12	12.0	PCB	1	52	100	2100	19.29								
254	4002	PANEL s4	4.0	1561M	2	57	500	1000	50.40								
255	4003	PANEL s4	4.0	1561M	2	57	1000	1000	100.80								
256	4006	Part S7	7.0	PCB	1	52	150	150	0.62		1	00700001					
257	4007	Part S7	7.0	PCB	1	52	150	200	1.65		1	00700001					
258	4008	Part S7	7.0	PCB	1	52	0	155	0.66		1	00700002					
259	4009	Part S7	7.0	PCB	1	52	0	160	0.68		1	00700002					
260	4010	Part S7	7.0	PCB	1	52	0	170	0.79		1	00700002					
261	4011	Part s10.0	10.0	PCD32	1	52	370	470	9.57								
262	4012	Part s10.0	10.0	PCD32	4	52	0	0	0.00								
263																	
264		TOTAL	Mass of all parts: 12195.88														
265			Number of nested parts: 109														
266			Number of unnested parts: 1282														

Title sheet | EN103-112-001 | EN103-112.03-010 | EN103-115-008 | EN103-115-

Готово 100%

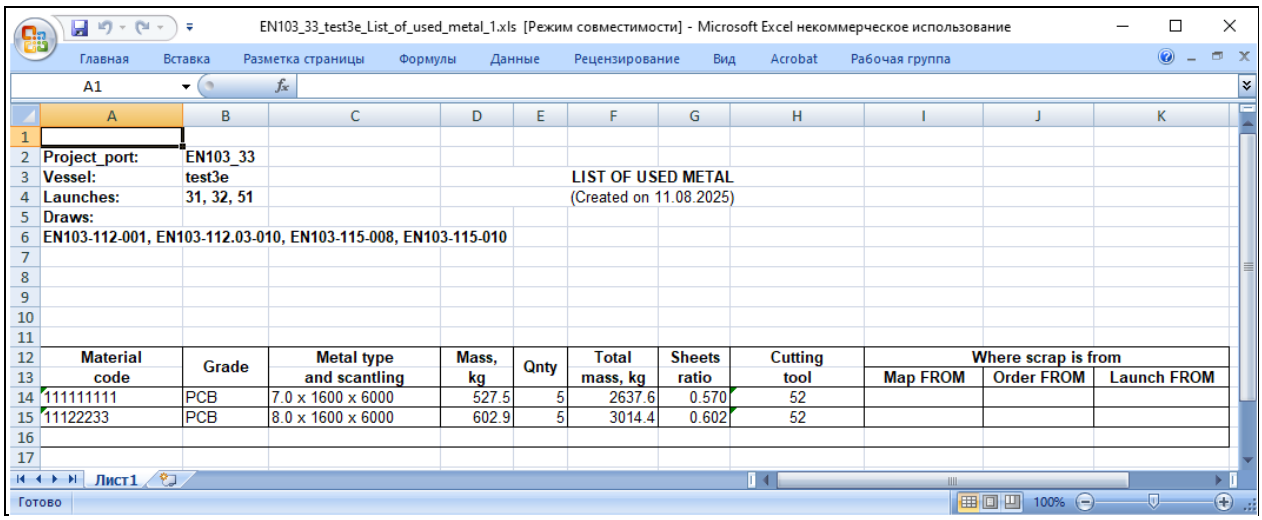
Drawing 97. Worksheet for draw EN103-112-001 (last lines)

6.4. List of used metal

Document includes information on sheet metal types used in current project_port. 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, nesting ratio, mass of a sheet and total mass of all sheets of this type, cutting tool. Button  serves for launching command.

Document is formed in Excel workbook file with one sheet. The file name is *List_of_used_metal_N.xls*, where N is a file number defined programmatically and not coinciding with number of any similar file in the folder *Doc*. Prefix of portion_port and order added.

On dr. 98 there is a sample document.



EN103_33_test3e_List_of_used_metal_1.xls [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид Acrobat Рабочая группа

A1

1											
2	Project_port:	EN103_33									
3	Vessel:	test3e				LIST OF USED METAL					
4	Launches:	31, 32, 51				(Created on 11.08.2025)					
5	Draws:										
6	EN103-112-001, EN103-112.03-010, EN103-115-008, EN103-115-010										
7											
8											
9											
10											
11											
12	Material code	Grade	Metal type and scantling	Mass, kg	Qnty	Total mass, kg	Sheets ratio	Cutting tool	Where scrap is from		
13									Map FROM	Order FROM	Launch FROM
14	111111111	PCB	7.0 x 1600 x 6000	527.5	5	2637.6	0.570	52			
15	11122233	PCB	8.0 x 1600 x 6000	602.9	5	3014.4	0.602	52			
16											
17											

Лист1

Готово 100%

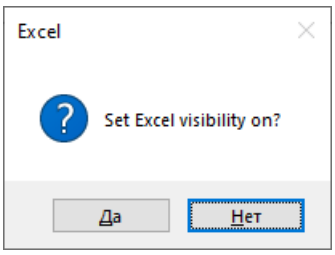
Drawing 98. List of used metal types

6.5. Lists of scraps

System creates two documents for scraps: for sheet and profile metal. There are considered scraps after saving nesting maps of current project_port. Scraps data are stored in tables otxod.dbf and otxodpr.dbf.

Command **List of usable scraps (sheet)** works with file otxod.dbf, that is not bound to project_port (path setting is written into branch HKEY_LOCAL_MACHINE of Windows registry in parameter *scrapsnano* of folder *SOFTWARE\NSHIP\N-Ship+*). Command's button is  .

During calculation Excel processor window can be hidden or visible. In the second case user can watch filling cells of Excel workbook, though it will increase work time. Program requests setting visibility on (**Yes**, **Да**) or off (**No**, **Нет**) (рис. 99):

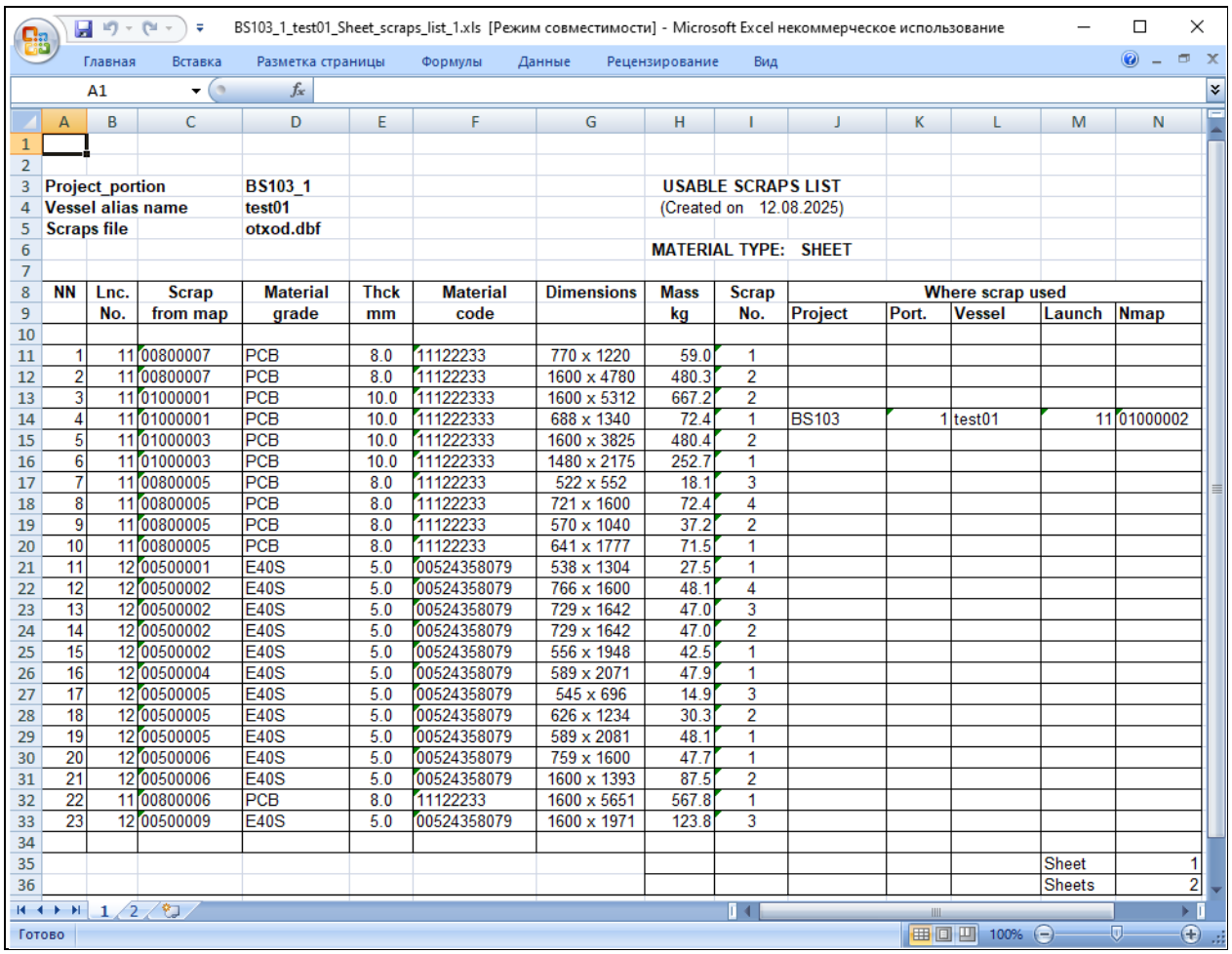


Drawing 99. Request on Excel visibility

After analyzing scraps of current project_port information is sent to command line: number of sheet scraps and number of Excel worksheets that will be generated. If profile scraps are found they are skipped. Calculation results are saved to folder *Doc* of active project_port. File name is *Sheet_scraps_list_N.xls*, with **prefix** of project, portion number, order name. N is a number of file (1 or greater). Final message is output to command line, for example:

Created file C:\NSHIP\SAMPLES\BS103_1\Doc\BS103_1_test01_Sheet_scraps_list_4.xls.

Document can occupy one or more Excel sheets. Sample is on dr. 100:



BS103_1_test01_Sheet_scraps_list_1.xls [Режим совместимости] - Microsoft Excel некоммерческое использование

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид

A1

3	Project_portion		BS103_1					USABLE SCRAPS LIST						
4	Vessel alias name		test01					(Created on 12.08.2025)						
5	Scraps file		otxod.dbf											
6								MATERIAL TYPE: SHEET						
8	NN	Lnc. No.	Scrap from map	Material grade	Thck mm	Material code	Dimensions	Mass kg	Scrap No.	Where scrap used				
9										Project	Port.	Vessel	Launch	Nmap
11	1	11	00800007	PCB	8.0	11122233	770 x 1220	59.0	1					
12	2	11	00800007	PCB	8.0	11122233	1600 x 4780	480.3	2					
13	3	11	01000001	PCB	10.0	111222333	1600 x 5312	667.2	2					
14	4	11	01000001	PCB	10.0	111222333	688 x 1340	72.4	1	BS103	1	test01	11	01000002
15	5	11	01000003	PCB	10.0	111222333	1600 x 3825	480.4	2					
16	6	11	01000003	PCB	10.0	111222333	1480 x 2175	252.7	1					
17	7	11	00800005	PCB	8.0	11122233	522 x 552	18.1	3					
18	8	11	00800005	PCB	8.0	11122233	721 x 1600	72.4	4					
19	9	11	00800005	PCB	8.0	11122233	570 x 1040	37.2	2					
20	10	11	00800005	PCB	8.0	11122233	641 x 1777	71.5	1					
21	11	12	00500001	E40S	5.0	00524358079	538 x 1304	27.5	1					
22	12	12	00500002	E40S	5.0	00524358079	766 x 1600	48.1	4					
23	13	12	00500002	E40S	5.0	00524358079	729 x 1642	47.0	3					
24	14	12	00500002	E40S	5.0	00524358079	729 x 1642	47.0	2					
25	15	12	00500002	E40S	5.0	00524358079	556 x 1948	42.5	1					
26	16	12	00500004	E40S	5.0	00524358079	589 x 2071	47.9	1					
27	17	12	00500005	E40S	5.0	00524358079	545 x 696	14.9	3					
28	18	12	00500005	E40S	5.0	00524358079	626 x 1234	30.3	2					
29	19	12	00500005	E40S	5.0	00524358079	589 x 2081	48.1	1					
30	20	12	00500006	E40S	5.0	00524358079	759 x 1600	47.7	1					
31	21	12	00500006	E40S	5.0	00524358079	1600 x 1393	87.5	2					
32	22	11	00800006	PCB	8.0	11122233	1600 x 5651	567.8	1					
33	23	12	00500009	E40S	5.0	00524358079	1600 x 1971	123.8	3					
35													Sheet	1
36													Sheets	2

1 2

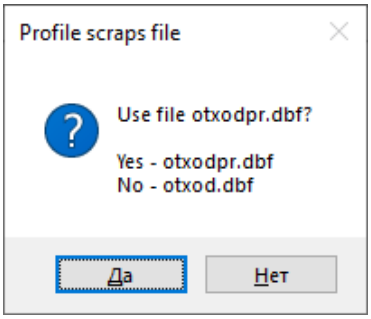
Готово 100%

Drawing 100. Sheet scraps list

Numbers of curved scraps are accompanied be ending **(C)**. If a scrap has child map on it then map parameters are filled in the columns **Project**, **Port.**, **Vessel**, **Launch**, **Nmap**.

Command **List of usable scraps (profile)** work with file otxodpr.dbf, that is not bound with project_port and is located in the same folder as file otxod.dbf. Command's button is  .

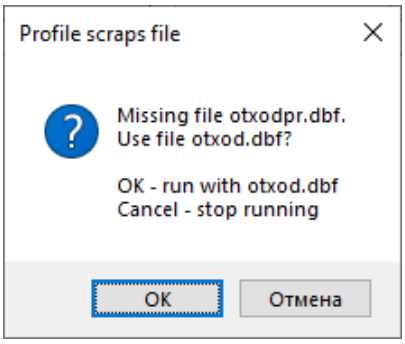
While moving from older version systems to N-Ship+ a situation is possible when profile scraps were saved not to otxodpr.dbf but to file otxod.dbf that in standard case is used only for sheet scraps. Therefore it is suggested to use as profile scraps file otxodpr.dbf (**Yes**, **Да**) or to go to work with file otxod.dbf (**No**, **Нет**) (dr. 101):



Drawing 101. Request for use otxodpr.dbf

If file otxodpr.dbf is missing then instead of it there will be offered work with file

otxod.dbf, this action requires confirmation (dr. 102):



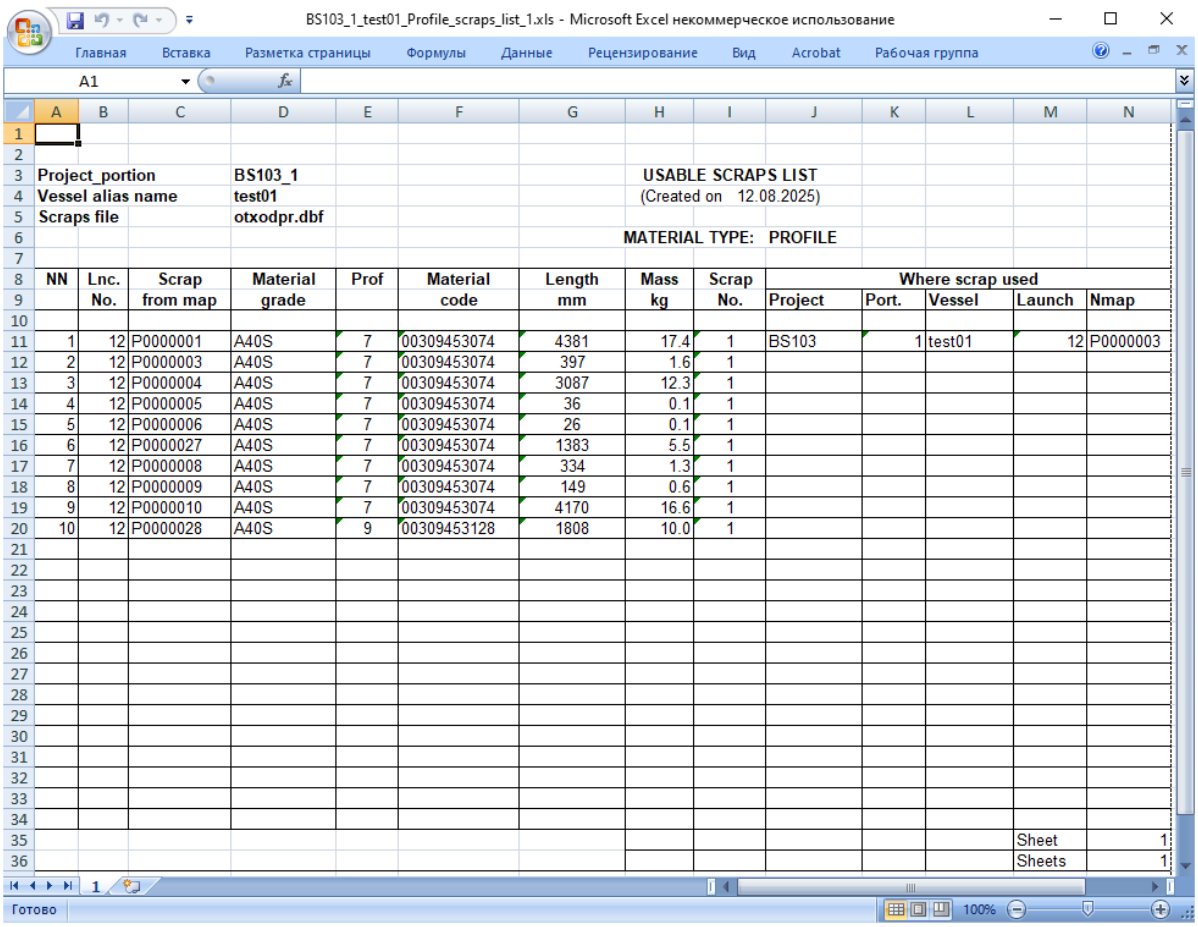
Drawing 102. Request for use of otxod.dbf

If **OK** then calculation will be executed with file otxod.dbf, and after **Cancel** (Отмена) process will be stopped.

During work number of profile scraps and number of Excel worksheets is output to command line. Sheet scarps are skipped. Results are saved in the folder *Doc* of active project_port. File name is *Profile_scraps_list_N.xls*, N is file number. Prefix with project_port and order (vessel) is added. Final message looks like this:

Created file C:\NSHIP\SAMPLES\BS103_1\Doc\BS103_1_test01_Profile_scraps_list_8.xls.

The document can consist of one or more Excel worksheets. Sample is on dr. 103:



NN	Lnc. No.	Scrap from map	Material grade	Prof	Material code	Length mm	Mass kg	Scrap No.	Where scrap used				
									Project	Port.	Vessel	Launch	Nmap
1	12	P0000001	A40S	7	00309453074	4381	17.4	1	BS103	1	test01	12	P0000003
2	12	P0000003	A40S	7	00309453074	397	1.6	1					
3	12	P0000004	A40S	7	00309453074	3087	12.3	1					
4	12	P0000005	A40S	7	00309453074	36	0.1	1					
5	12	P0000006	A40S	7	00309453074	26	0.1	1					
6	12	P0000027	A40S	7	00309453074	1383	5.5	1					
7	12	P0000008	A40S	7	00309453074	334	1.3	1					
8	12	P0000009	A40S	7	00309453074	149	0.6	1					
9	12	P0000010	A40S	7	00309453074	4170	16.6	1					
10	12	P0000028	A40S	9	00309453128	1808	10.0	1					
												Sheet	1
												Sheets	1

Drawing 103. Profile scraps list

Parameter **Scraps file** shows file name that was used. If scrap was nested then in its row data of area **Where scrap used** are filled.

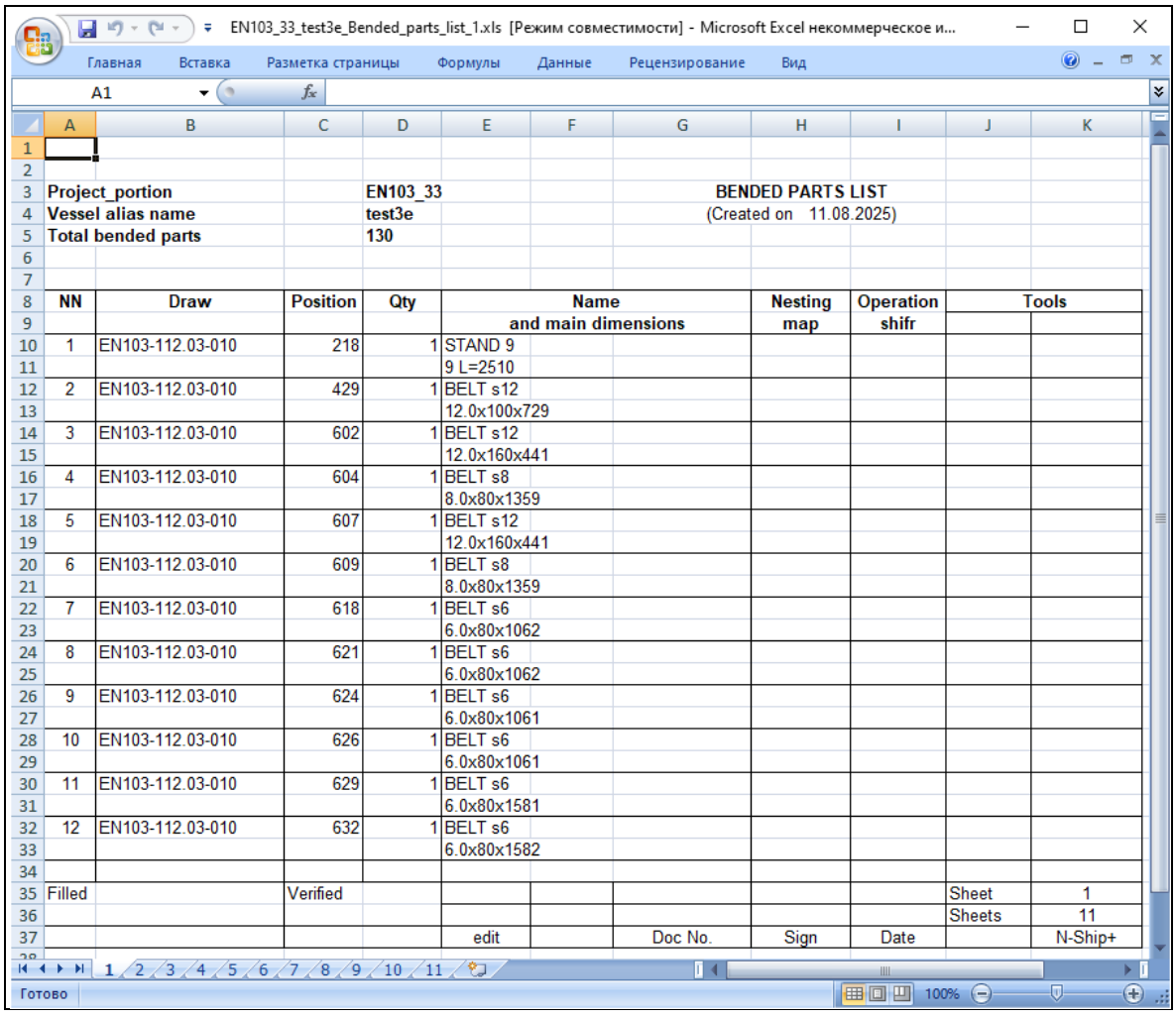
6.6. List of bended parts

System forms list of parts requiring bending, for current project_port.

Command **List of bended parts** generates parts list having sign G (bend). Command's button is  .

Document is creted in Excel workbook with worksheets. Each worksheet receives 12 parts. File name is *Bended_parts_list_N.xls*, where N is a number of file that differs from numbers of other files in the folder *Doc*. Name is appended with **prefix** with project_port, order (vessel), e.g.: *EN103_33_test3e_Bended_parts_list_2.xls*.

Dr. 104 shows an example of the first worksheet of Excel workbook with bended parts list.



EN103_33_test3e_Bended_parts_list_1.xls [Режим совместимости] - Microsoft Excel некоммерческое и...

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A1

	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3	**Project_portion**			**EN103_33**				**BENDED PARTS LIST**			
4	**Vessel alias name**			**test3e**				(Created on 11.08.2025)			
5	**Total bended parts**			**130**							
6											
7											
8	**NN**	**Draw**	**Position**	**Qty**	**Name**			**Nesting**	**Operation**	**Tools**	
9					**and main dimensions**			**map**	**shifr**		
10	1	EN103-112.03-010	218	1	STAND 9						
11					9 L=2510						
12	2	EN103-112.03-010	429	1	BELT s12						
13					12.0x100x729						
14	3	EN103-112.03-010	602	1	BELT s12						
15					12.0x160x441						
16	4	EN103-112.03-010	604	1	BELT s8						
17					8.0x80x1359						
18	5	EN103-112.03-010	607	1	BELT s12						
19					12.0x160x441						
20	6	EN103-112.03-010	609	1	BELT s8						
21					8.0x80x1359						
22	7	EN103-112.03-010	618	1	BELT s6						
23					6.0x80x1062						
24	8	EN103-112.03-010	621	1	BELT s6						
25					6.0x80x1062						
26	9	EN103-112.03-010	624	1	BELT s6						
27					6.0x80x1061						
28	10	EN103-112.03-010	626	1	BELT s6						
29					6.0x80x1061						
30	11	EN103-112.03-010	629	1	BELT s6						
31					6.0x80x1581						
32	12	EN103-112.03-010	632	1	BELT s6						
33					6.0x80x1582						
34											
35	Filled		Verified							Sheet	1
36										Sheets	11
37					edit		Doc No.	Sign	Date		N-Ship+

1 2 3 4 5 6 7 8 9 10 11

Готово 100%

Drawing 104. Bended parts list

6.7. Albums for hull workshop

In **N-Ship** system part sketches are created in the forms of technologic norming cards (TNC, FPD). Corresponding commands are considered in user manual of module **Part**.

Additional options is to publish albums by launches for materials, parts and their nesting maps. Albums are utilized in a single section of the hull workshop (HWS). Each album is connected to:

- album parameters record in DBF table alboms.dbf and group of records for parts in alb_details.dbf;

- four files of Excel workbooks (title sheet, contents, materials list, delivery list);

- DWG files of TNCs for parts included in album.

Albums are named by string like **9201-s-52-NB-7.0-D40S**, containing 6 parameters divided by minuses:

9201 — launch number;

л (**п**) — album part type (**s**heet or **p**rofile);

52 (**51**, **54**, **55**, **57**) — cutting type for album parts;

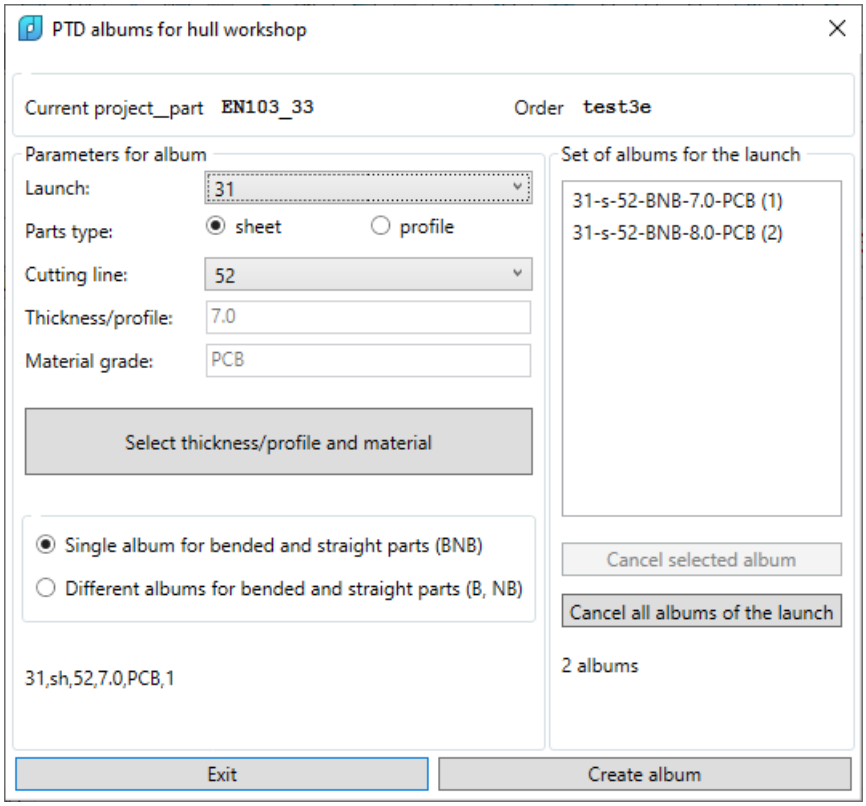
NB (**B**, **BNB**) — method of including parts to album with regard to bend operation (**B** bended parts, **NB** non-bended parts, **BNB** together bended and non-bended parts);

7.0 — album part thickness (or profile number — e.g., **14A**);

D40S — album parts material grade.

6.7.1. DBF files of albums

Menu command **BDATA > DOCUMENTS > ALBUMS > Album of PTD for HWS** (button  of toolbar **Documents**) is designed for forming data of album and saving them to DB (alboms.dbf and alb_details.dbf). Dialog box **PTD albums for hull workshop** opens (dr. 105).



Drawing 105. Window **PTD albums for hull workshop**

Area **Parameters for album** serves for selection of parameters, that are in particular forming album name. Area **Set of albums for the launch** shows launch albums that are already saved to DB, with unique ordinal number in parentheses (under this number album is included into set for the launch).

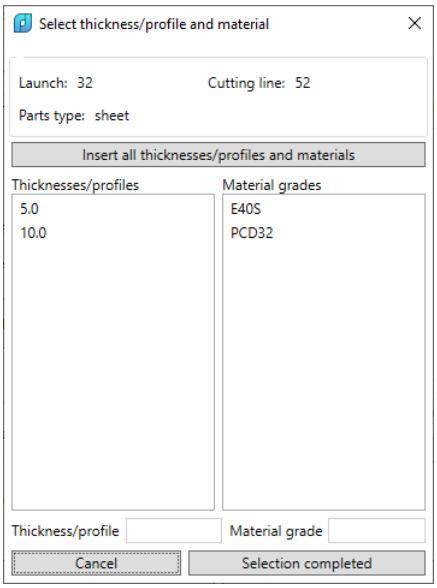
With button **Cancel all albums of the launch** it is possible to delete from DB all the albums of the launch that is selected in the left zone of the window. If user selects an album in the area **Set of albums for the launch**, then button **Cancel selected album** is enabled. The button's designation is to delete only selected album.

For forming new album or replacing existing album it is necessary to make selection in the list **Launch**, in the radiorow **Parts type**, in the list **Cutting line**. Next with button **Select thickness/profile and material** to select sheet thickness (or profile type) and material grade.

At initial moment after start of command **Album of PTD for HWS** window displays default data: launch with the least number in project_port and sheet type of parts. Default value for cutting line is 52 for sheet and 57 for profile. In the field **Thickness/profile** there is the least thickness or upper element in alphabetically sorted list of profiles — for given launch, parts type and cutting line. Field **Material grade** shows alphabetically first materiail for shown thickness (profile). If selected combination launch + parts type + cutting line corresponds to no thickness (profile), then fields of thickness (profile) and material grade are empty.

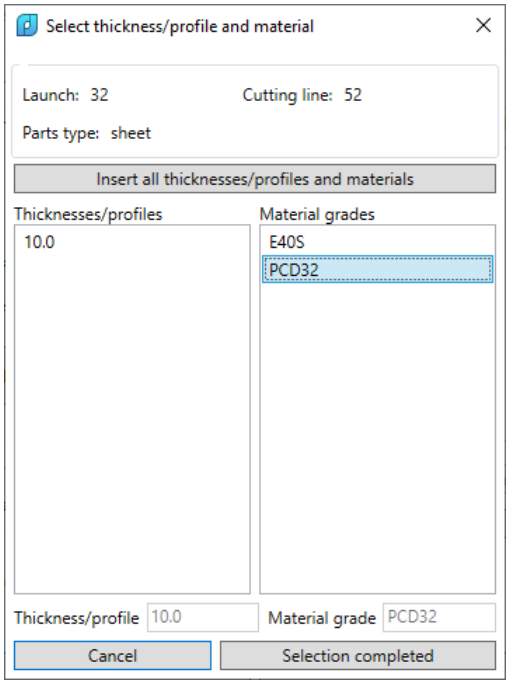
There is one more group of radiobuttons in the window: **Single album for bended and straight parts (BNB)** and **Different albums for bended and straight parts (B, NB)**. For the first one program calculates single album (BNB), and for the second one two albums (B and NB). The first radiobution is applied as default.

For selection of sheet thickness (profile no.) and material grade it is necessary to press button **Select thickness/profile and material**. Window **Select thickness/profile and material** is opened (dr. 106).



Drawing 106. Window **Select thickness/profile and material** (before selection)

Selection can be made in any sequence. It is possible to begin from thickness (profile), and possible to begin with material grade. But after the first selection data contents will change in the window the second list will be restricted for the values corresponding to the selected value. Suppose that the first selection was made in the list **Material grades** and grade **PCD32** was selected. Then the left list will change and only those that correspond to PCD32 will leave. Thickness 5.0 disappeared (dr. 107).



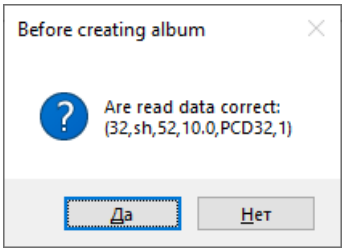
Drawing 107. Window **Select thickness/profile and material** (grade selected)

The last step is to select thickness or to cancel the first selection of grade. If user wishes to restart work in the window he must press button **Insert all thicknesses/profiles and materials**, that will reset both lists up to source state and clears results in the fields **Thickness/profile** and **Material grade** in the lower part of the dialog box. The end of selection should be fixed by button **Selection completed**. Results will be transferred to the window **PTD albums for hull workshop**.

Simultaneously all selected values of parameters will be displayed in a string in the lower part of the window (32,sh,52,10.0,PCD32,1). One difference: for sheet will be sh, for profile - pr.

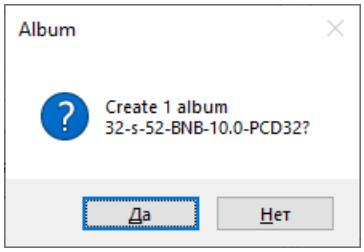
ATTENTION! In some versions of nanoCAD there is a defect that does not get the right reaction for selection in combobox **Cutting line**. For example, selected 54, but in the lower area we can still see 52. Program will generate warning request and require to check selection once more. If changes are not displayed then it is necessary to repeat selection in a more complicated way via third value (e.g., first 51, then again 54). This will allow to achieve result. In versions nanoCAD 24.0 and greater (24.1, …) mentioned problem does not take place and there is no warning request.

After end of selection one must click button **Create album**. There is a request (dr. 108, only in nanoCAD 23).



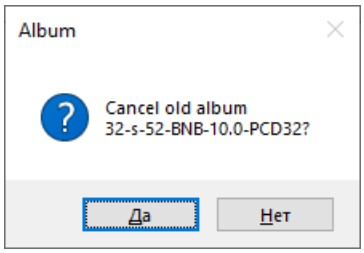
Drawing 108. Request **Before creating album** (nanoCAD 23)

It shows data of the lower area of the window. **No (Нет)** returns to resetting parameters. **Yes (Да)** starts calculation (selection of nesting maps, parts, etc.). Next request is on dr. 109.



Drawing 109. Request 2

If **Yes (Да)** program verifies, whether such an album already exists in DB. If exists, then there will be request 3 for deletion of old album from DB (dr. 110):



Drawing 110. Request 3

Continuation of work is possible only by reply **Yes (Да)**. Program deletes old version of album from DB. New variant of album will be created, but with other, free internal number of album in launch that is shown in parentheses in the list **Set of albums for the launch**.

Calculation goes on, album data are saved to DB, in the right side of window message appears: **Created 32-s-52-BNB-10.0-PCD32**. A subfolder with launch number (32) is created in the folder *Doc* of current project_port, and file *.txt with album textual image is saved in it (file is required for album output to Excel workbook).

Next user can either continue with other albums, or with button **Exit** close window **PTD albums for hull workshop**.

During album calculation messages are printed in the text screen, for example:

Creating PTD albums by materials and nesting maps...

Cancelled album 32-s-52-BNB-10.0-PCD32.

Saving to alboms.dbf.

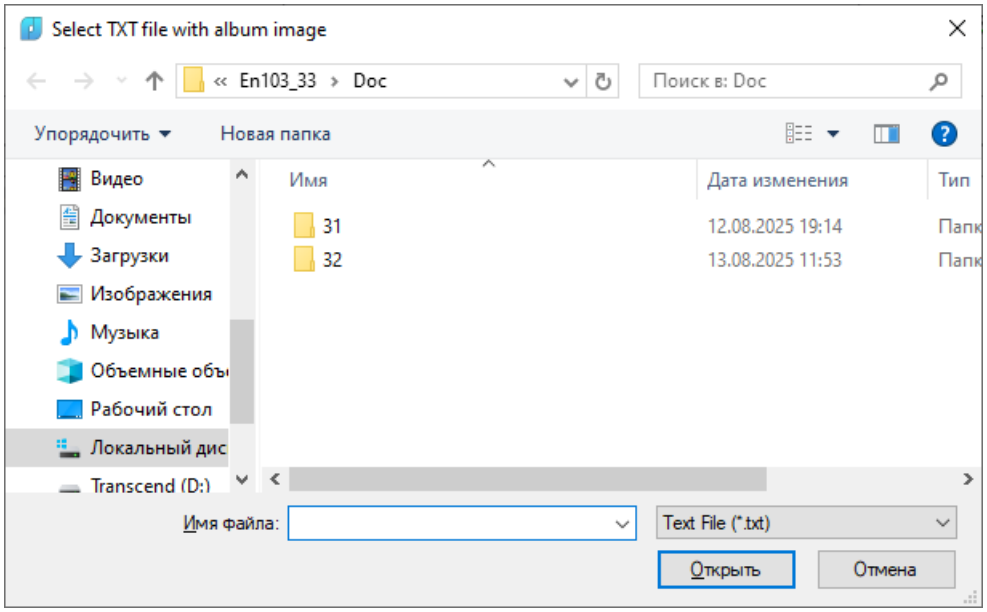
Saving to alb_details.dbf.

Saved: 30 positions.

Created album image 32-s-52-BNB-10.0-PCD32.

6.7.2. XLS workbooks of albums

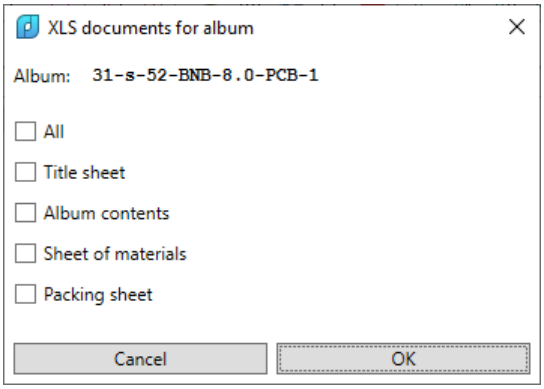
After writing album records to DB and saving album image in text format user can go to command **BDATA > DOCUMENTS > ALBUMS > Output to Excel** ( ). Command opens window for selection of TXT file (dr. 111).



Drawing 111. Window **Select TXT file with album image**

Inside folder *Doc* there are seen subfolders 31 – 32, bound to launches with these number. User must enter required launch subfolder and select file of the album. For example, for album 32-s-54-BNB-3.0-A40S this is file 32\<project>_<portion>_32-s-54-BNB-3.0-A40S.txt.

For an album there are usually being created four Excel files *.xls, but not always. Therefore next window **XLS documents for album** (dr. 112).

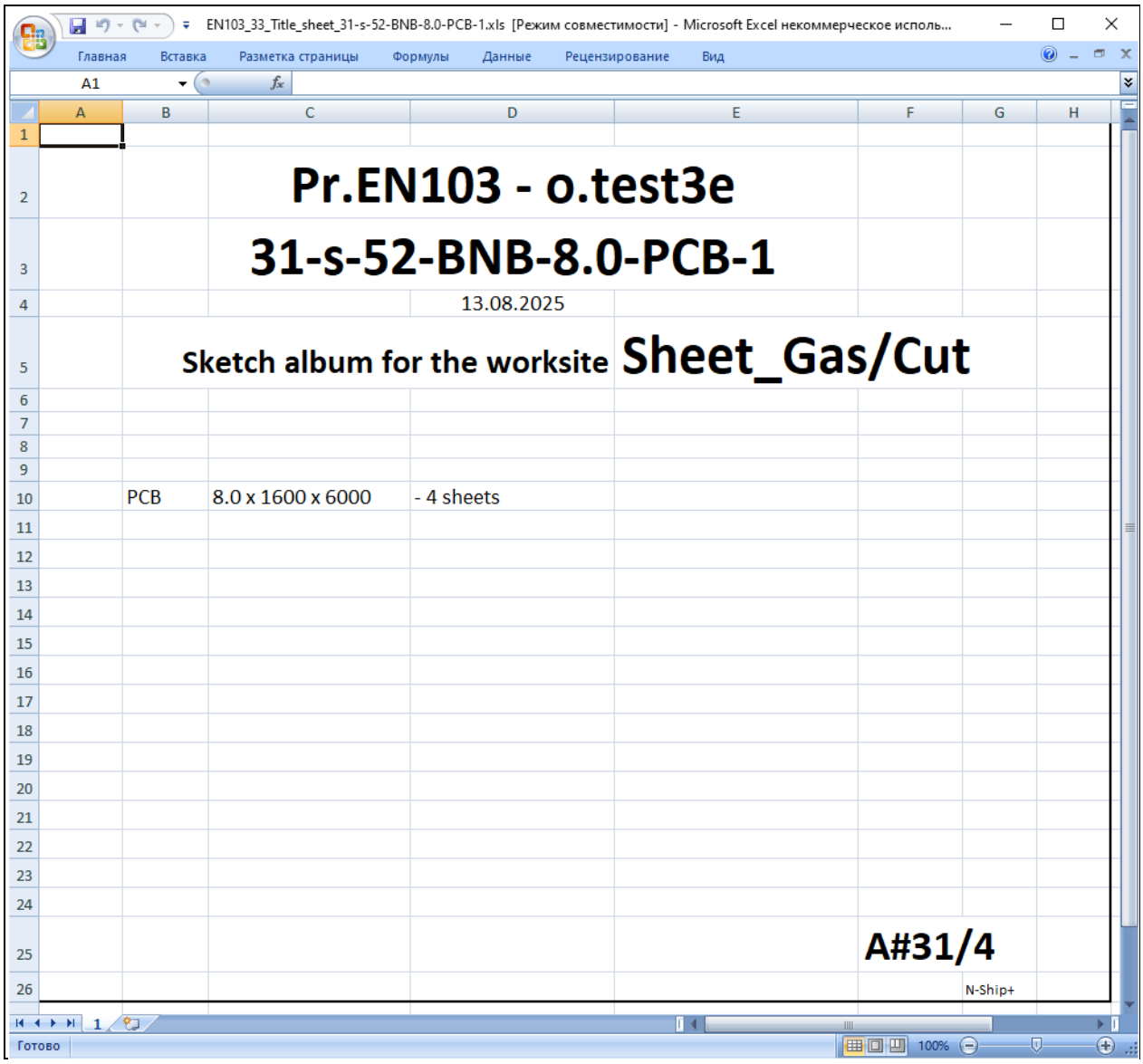


Drawing 112. Window **XLS documents for album**

One should check boxes for required XLS tables or check box **All** for selection of four Excel workbooks. After calculation there will be created four Excel files. Program does not apply method of writing all the tables into one workbook, because each document may occupy several

Excel worksheets and uniting them would be uncomfortable.

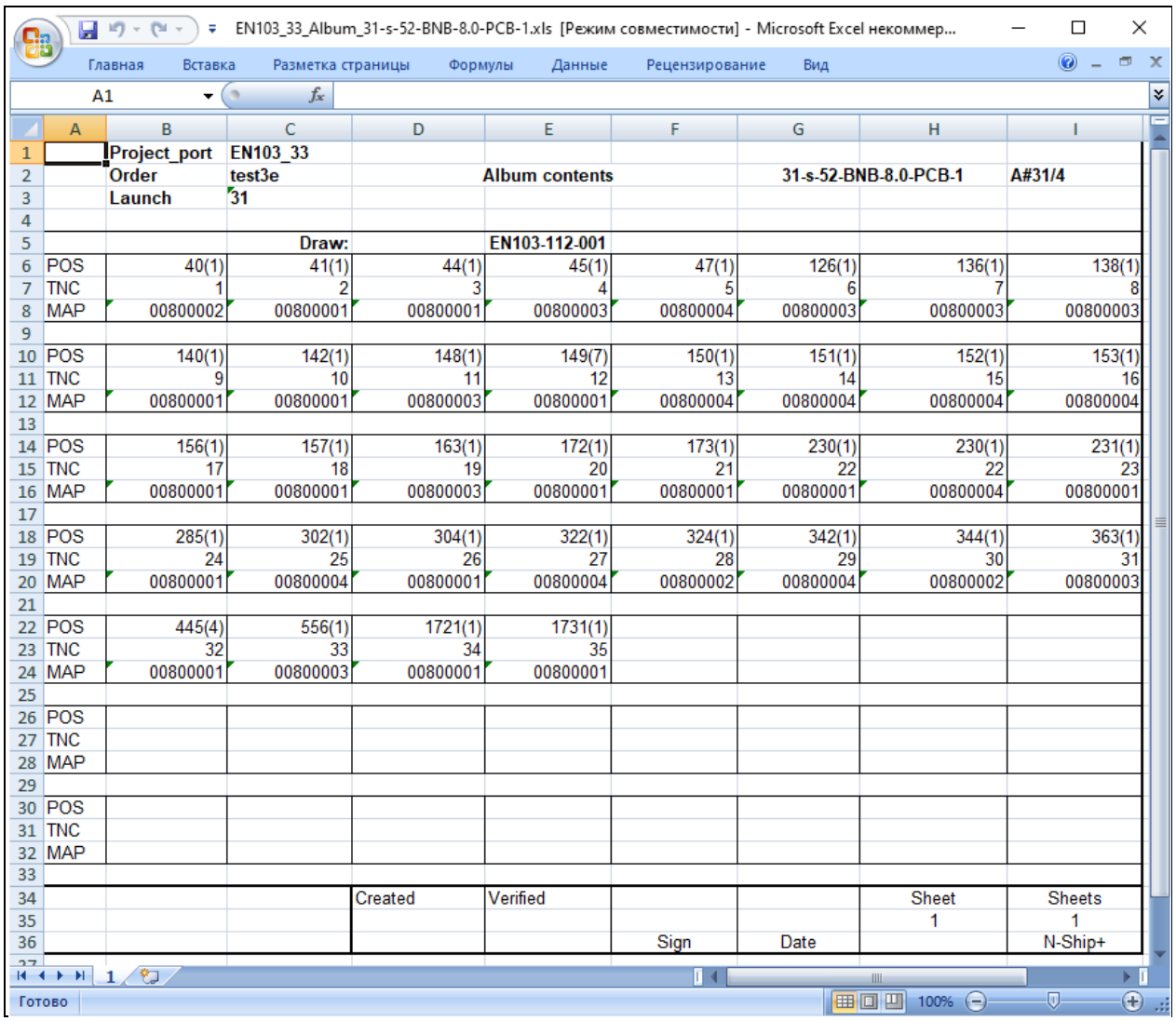
Dr. 113 shows beginning of the album title sheet (Doc\31\ <project>_<portion>_31-s-52-BNB-8.0-PCB-1.xls).



Drawing 113. Album title sheet

Sample workbook includes one Excel worksheet (possible several worksheets). There is a list of raw metal sheets and scraps, on which album parts are nested. HWS worksite name is given conditionally. This worksite will apply the album for manufacturing.

Sample of album contents sheet in XLS workbook is shown on dr. 114.



EN103_33_Album_31-s-52-BNB-8.0-PCB-1.xls [Режим совместимости] - Microsoft Excel некоммер...

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид

A1

	A	B	C	D	E	F	G	H	I
1		Project_port	EN103_33						
2		Order	test3e		Album contents		31-s-52-BNB-8.0-PCB-1		A#31/4
3		Launch	31						
4									
5			Draw:		EN103-112-001				
6	POS	40(1)	41(1)	44(1)	45(1)	47(1)	126(1)	136(1)	138(1)
7	TNC	1	2	3	4	5	6	7	8
8	MAP	00800002	00800001	00800001	00800003	00800004	00800003	00800003	00800003
9									
10	POS	140(1)	142(1)	148(1)	149(7)	150(1)	151(1)	152(1)	153(1)
11	TNC	9	10	11	12	13	14	15	16
12	MAP	00800001	00800001	00800003	00800001	00800004	00800004	00800004	00800004
13									
14	POS	156(1)	157(1)	163(1)	172(1)	173(1)	230(1)	230(1)	231(1)
15	TNC	17	18	19	20	21	22	22	23
16	MAP	00800001	00800001	00800003	00800001	00800001	00800001	00800004	00800001
17									
18	POS	285(1)	302(1)	304(1)	322(1)	324(1)	342(1)	344(1)	363(1)
19	TNC	24	25	26	27	28	29	30	31
20	MAP	00800001	00800004	00800001	00800004	00800002	00800004	00800002	00800003
21									
22	POS	445(4)	556(1)	1721(1)	1731(1)				
23	TNC	32	33	34	35				
24	MAP	00800001	00800003	00800001	00800001				
25									
26	POS								
27	TNC								
28	MAP								
29									
30	POS								
31	TNC								
32	MAP								
33									
34				Created	Verified			Sheet	Sheets
35								1	1
36						Sign	Date		N-Ship+

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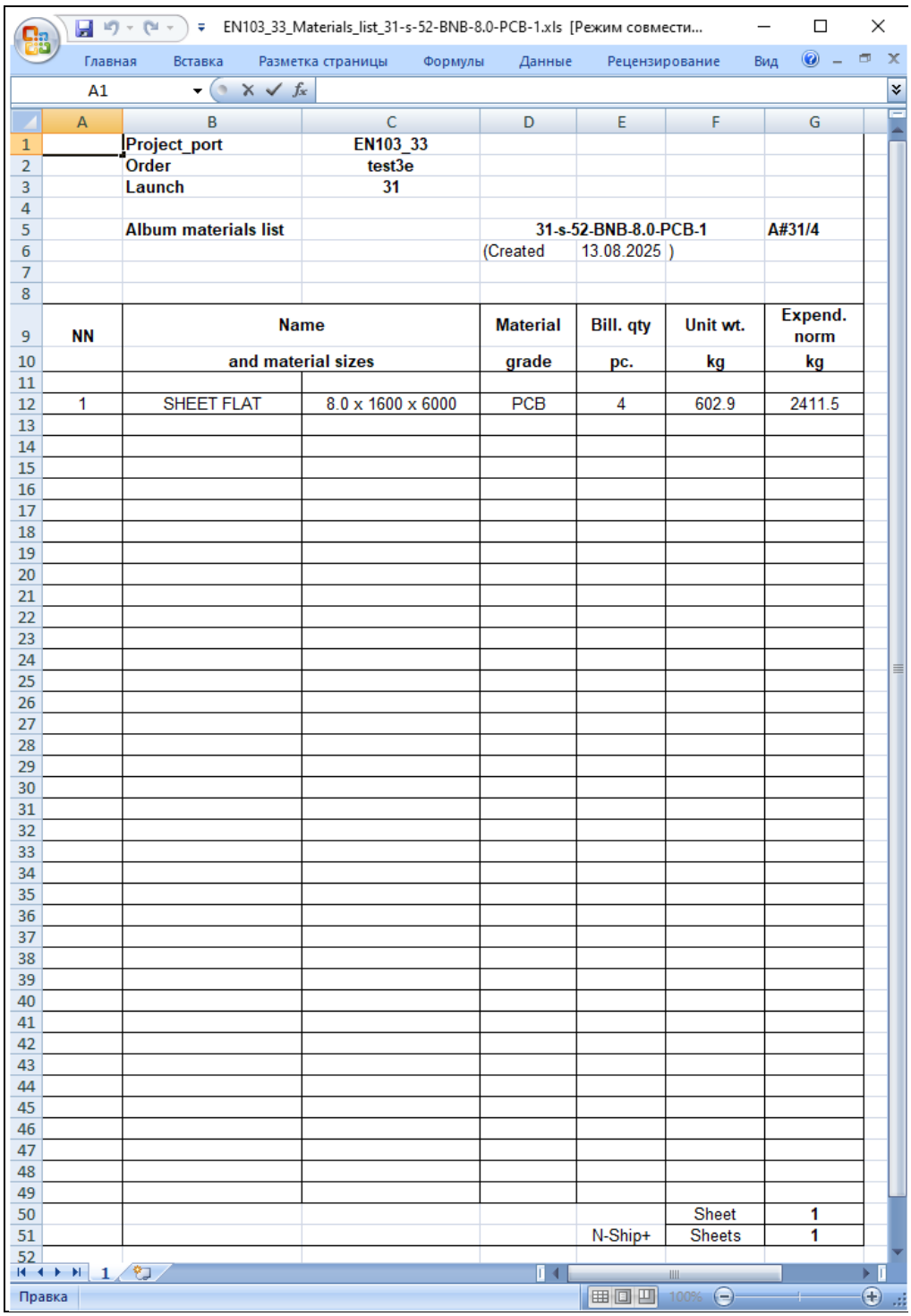
Drawing 114. Album contents sheet

This is a complex document. Total number of Excel worksheets in sample ia 1 but it can be much greater. Parts are distributed by draws. In the row **POS** there are position numbers and positions quantity of the part in nesting map. In the row **TNC** there is number of printed DWG sketch, **MAP** is a nesting map name.

Next document is album materials list (dr. 115).

There are material type for album metal sheets, sizes (gabarits), material grade, quantity of raw metal sheets, sheet unit weight and summary weight of all the sheets of this size.



Drawing 115. Album materials list

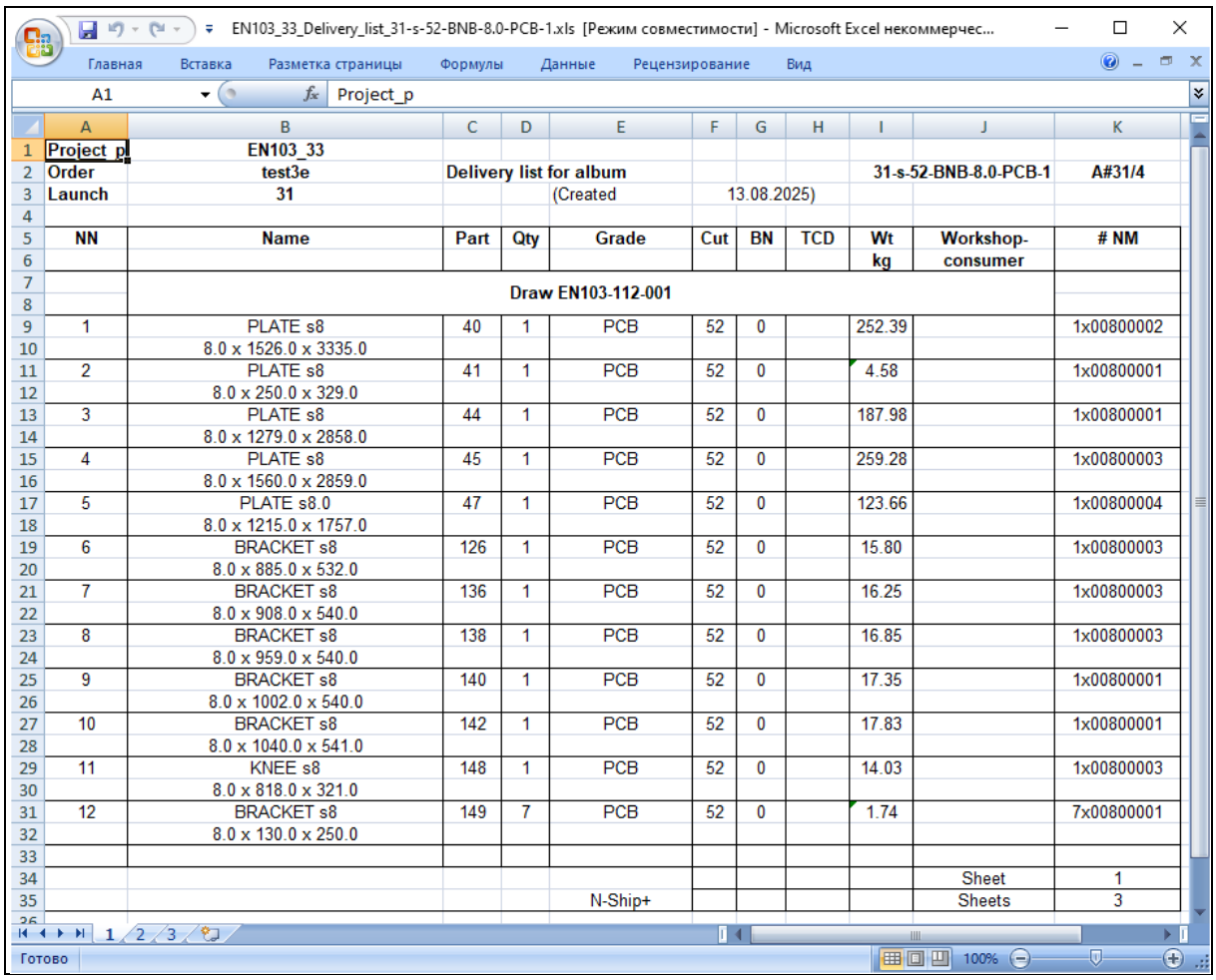
The fourth document type is an album delivery list for the launch (dr. 116). This document does not coincide with delivery list for project_port that was considered herein before.

It contains parts list for this launch, this type (sheet/profile), single thickness, material grade and cutting line.

Parts are grouped by draws. Inside each draw group there are part name (as in specification), position number, positions quantity (in specification), names of nesting maps with this part (and quantity of this part positions in the map), mass of single part.

If part requires bending then column **BN** contains 1, if no then 0.

Delivery list isusually a multisheet document. Total number of worksheets in this Excel workbook is shown in the field **Sheets** (on dr. 116 it is 3).



EN103_33_Delivery_list_31-s-52-BNB-8.0-PCB-1.xls [Режим совместимости] - Microsoft Excel некоммерчес...

Главная Вставка Разметка страницы Формулы Данные Рецензирование Вид

A1 Project_p

	A	B	C	D	E	F	G	H	I	J	K
1	Project_p	EN103_33									
2	Order	test3e	Delivery list for album							31-s-52-BNB-8.0-PCB-1	A#31/4
3	Launch	31			(Created		13.08.2025)				
4											
5	NN	Name	Part	Qty	Grade	Cut	BN	TCD	Wt kg	Workshop-consumer	# NM
6											
7		Draw EN103-112-001									
8											
9	1	PLATE s8	40	1	PCB	52	0		252.39		1x00800002
10		8.0 x 1526.0 x 3335.0									
11	2	PLATE s8	41	1	PCB	52	0		4.58		1x00800001
12		8.0 x 250.0 x 329.0									
13	3	PLATE s8	44	1	PCB	52	0		187.98		1x00800001
14		8.0 x 1279.0 x 2858.0									
15	4	PLATE s8	45	1	PCB	52	0		259.28		1x00800003
16		8.0 x 1560.0 x 2859.0									
17	5	PLATE s8.0	47	1	PCB	52	0		123.66		1x00800004
18		8.0 x 1215.0 x 1757.0									
19	6	BRACKET s8	126	1	PCB	52	0		15.80		1x00800003
20		8.0 x 885.0 x 532.0									
21	7	BRACKET s8	136	1	PCB	52	0		16.25		1x00800003
22		8.0 x 908.0 x 540.0									
23	8	BRACKET s8	138	1	PCB	52	0		16.85		1x00800003
24		8.0 x 959.0 x 540.0									
25	9	BRACKET s8	140	1	PCB	52	0		17.35		1x00800001
26		8.0 x 1002.0 x 540.0									
27	10	BRACKET s8	142	1	PCB	52	0		17.83		1x00800001
28		8.0 x 1040.0 x 541.0									
29	11	KNEE s8	148	1	PCB	52	0		14.03		1x00800003
30		8.0 x 818.0 x 321.0									
31	12	BRACKET s8	149	7	PCB	52	0		1.74		7x00800001
32		8.0 x 130.0 x 250.0									
33											
34										Sheet	1
35					N-Ship+					Sheets	3

1 2 3

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Drawing 116. Album delivery list

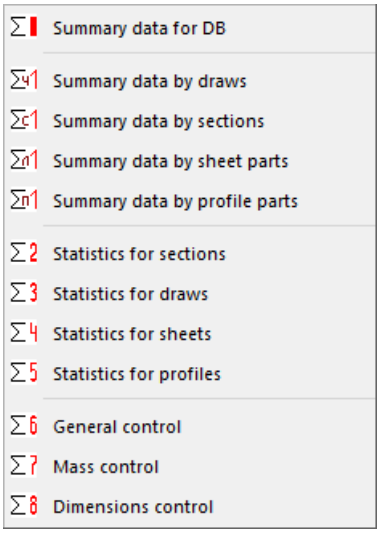
6.7.3. Part sketch drawings

XLS tables are introduction to graphical portion of album. It consists of sketch drawings of hull parts (in format DWG or PDF).

Note. Output of TNCs for parts included into album, is executed by commands of module **Part**.

7. STATISTICS

Submenu **STATISTICS** (dr. 117) is devoted to operations for forming text documents with summary and statistic data for parts of current project_port. The same commands are included in toolbar **Statistics**.

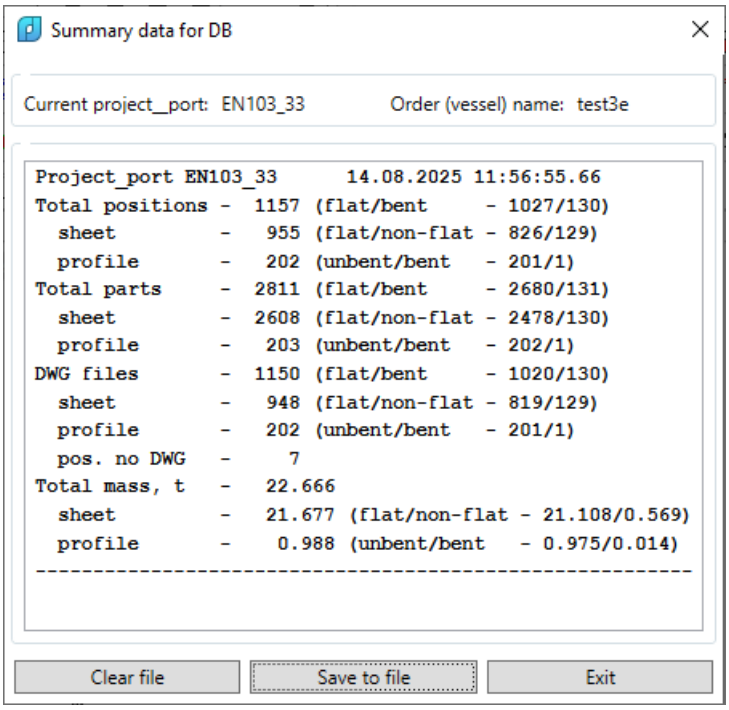


Drawing 117. Submenu **STATISTICS**

7.1. Summary data for DB

Menu item **BDATA > STATISTICS > Summary data for DB** and button  of toolbar **Statistics** run calculation of summary data for DB of the current project_port.

Command works and output results to the window **Summary data for DB** (dr. 118).



Drawing 118. Window **Summary data for DB**

Results include statistics by positions, parts, DWG files and masses, with division to sheet and profile parts. Parts are also differentiated to requiring bend and not requiring it.

Received results can be saved (appended) to statistic file *Summary data for DB.txt*, residing in the folder Doc of current project_port. Saving is done by button **Save to file**. New lines are appended to the end of file, if it existed before calculation.

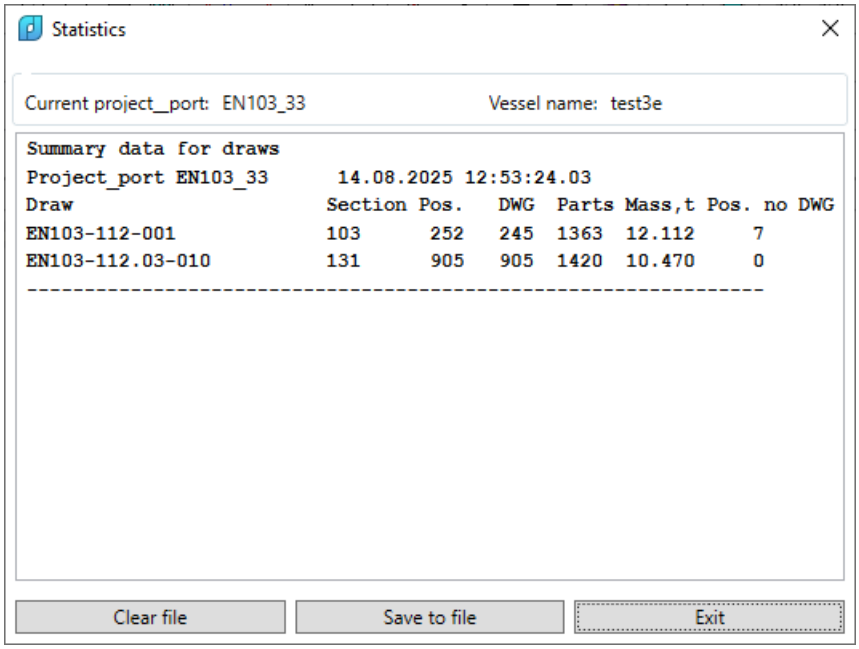
Button **Clear file** is used for cleaning previous contents of the file *Summary data for*

DB.txt, if it is not required for future.

7.2. Summary data by draws

Menu item **BDATA > STATISTICS > Summary data by draws** and button  run calculation of summary data with division by draws of current project_port.

Command works and outputs results to window **Statistics** (dr. 119):



Drawing 119. Summary data for draws

Results include statistic by draws. For each draw there is section number, positions quantity (in specification), number of created part DWG files, total quantity of parts (considering mutiplicities) and summary mass of prepared parts. There is quantity of positions left without geometry DWG files.

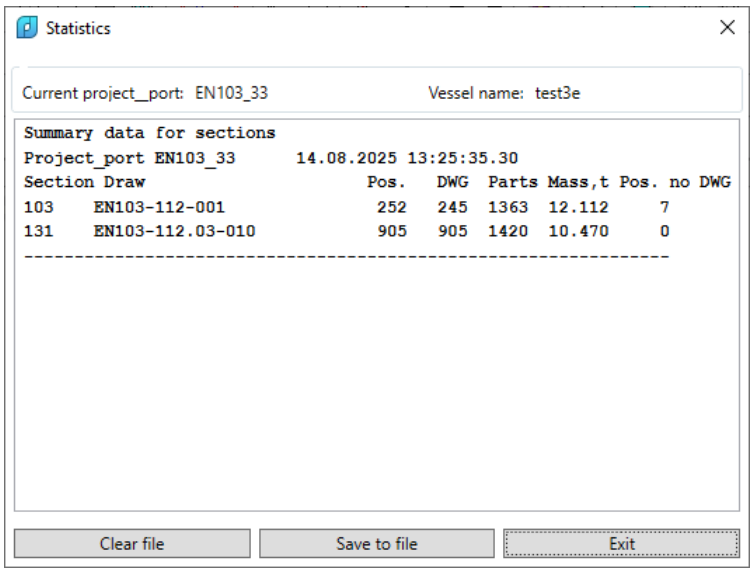
Buttons **Save to file** and **Clear file** respectively allow to append results to file *Summary data by draws.txt* in subfolder Doc of current project_port or to clear this file before saving.

7.3. Summary data by sections

Menu item **BDATA > STATISTICS > Summary data by sections** and button  execute calculation of summary parts data with division by sections of current project_port.

After calculation command outputs results to the window **Statistics** (dr. 120).

Results include statistics by sections. For each section there are draw name, positions quantity in specification, quantity of part DWG files, total number of parts (regarding multiplicities) and summary mass of processed parts. There is positions quantity that are missing geometry DWG files.



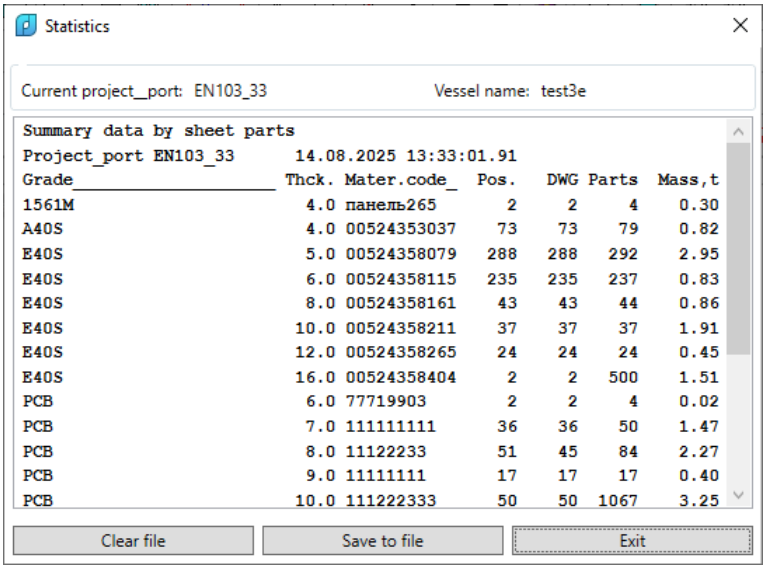
Drawing 120. Summary data by sections

Buttons **Save to file** and **Clear file** respectively allow to save results to file *Summary data by sections.txt* in subfolder Doc of current project_port or to clear this file before saving.

7.4. Summary data for sheet parts

Menu item **BDATA > STATISTICS > Summary data by sheet parts** and button  make calculation for sheet parts of the current project_port with division by grades, thicknesses and material codes.

After calculation command outputs results to the window **Statistics** (dr. 121).



Drawing 121. Summary data by sheet parts

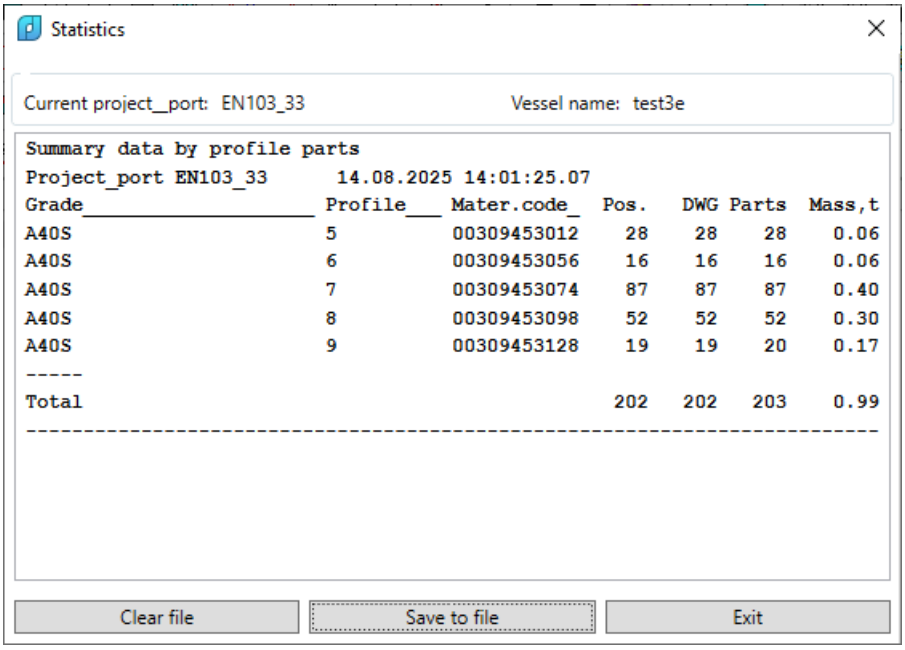
Results include statistics for sheet parts sorted by grades, thicknesses and material codes. For each grade there are positions quantity in specification, quantity of part DWG files, total number of parts (regarding multiplicities) and summary mass of processed parts.

Buttons **Save to file** and **Clear file** respectively allow to append results to file *Summary data by sheet parts.txt* in subfolder Doc of current project_port or to clear this file before saving.

7.5. Summary data for profile parts

Menu item **BDATA > STATISTICS > Summary data by profile parts** and button  make calculation for profile parts of the current project_port with division by grades, profile numbers and material codes.

After calculation command outputs results to the window **Statistics** (dr. 122).



Drawing 122. Summary data by profile parts

Results include statistics for profile parts sorted by grades, profile types and material codes. For each grade there are positions quantity in specification, quantity of part DWG files, total number of parts (regarding multiplicities) and summary mass of processed parts.

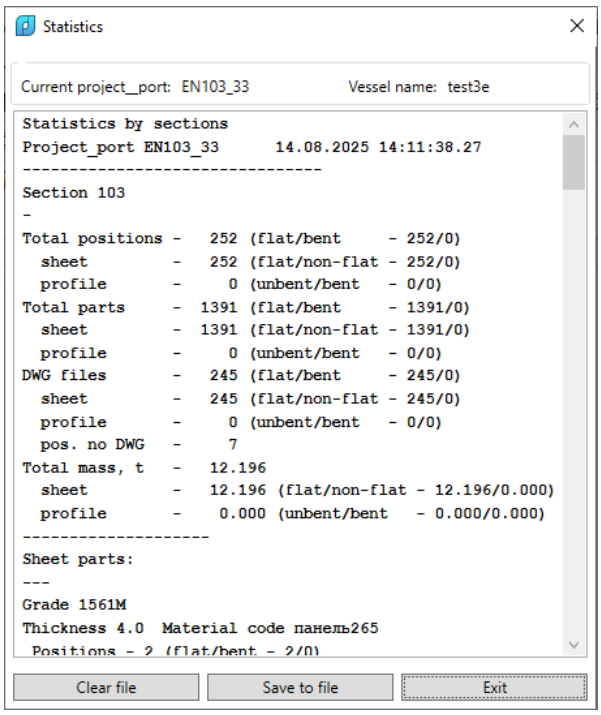
Buttons **Save to file** and **Clear file** respectively allow to append results to file *Summary data by profile parts.txt* in subfolder Doc of current project_port or to clear this file before saving.

7.6. Statistics for sections

Menu item **STATISTICS > Statistics for sections** and button  of toolbar **Statistics** make calculations of summary data for materials with division by current project_port sections and differentiation by material grades.

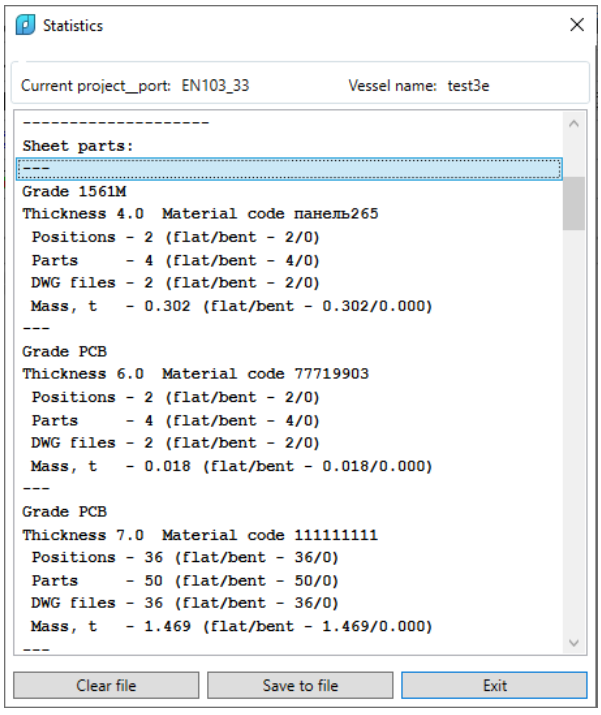
Command outputs results to the window **Statistics** (dr. 123).

Results are divided by sections. First there are summary data for section, including information both for sheet and profile materials.



Drawing 123. Statistics by sections (summary data for section)

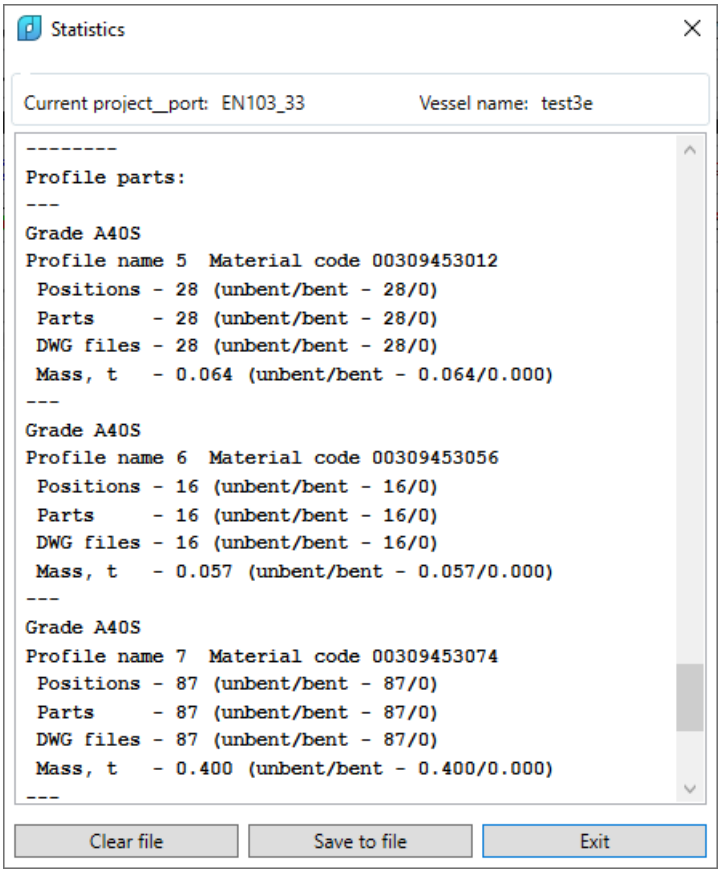
Next there follows statistics for sheet parts of section (dr. 124).



Drawing 124. Statistics by sections (sheet materials)

For each material there are grade, draw name, positions quantity in specification, total quantity of parts (regarding multiplicities), quantity of part DWG files and summary mass. In parentheses there are data by flat and bended parts.

The last portion of statistics contains information for profile parts (dr. 125).



Drawing 125. Statistics by sections (profile materials)

Added data by flat and bended parts.

If section has no profile parts then there is text **No profile parts**.

Buttons **Save to file** and **Clear file** respectively allow to append results to file *Statistics by sections.txt* in subfolder Doc of current project_port or to clear this file before saving to it statistic data.

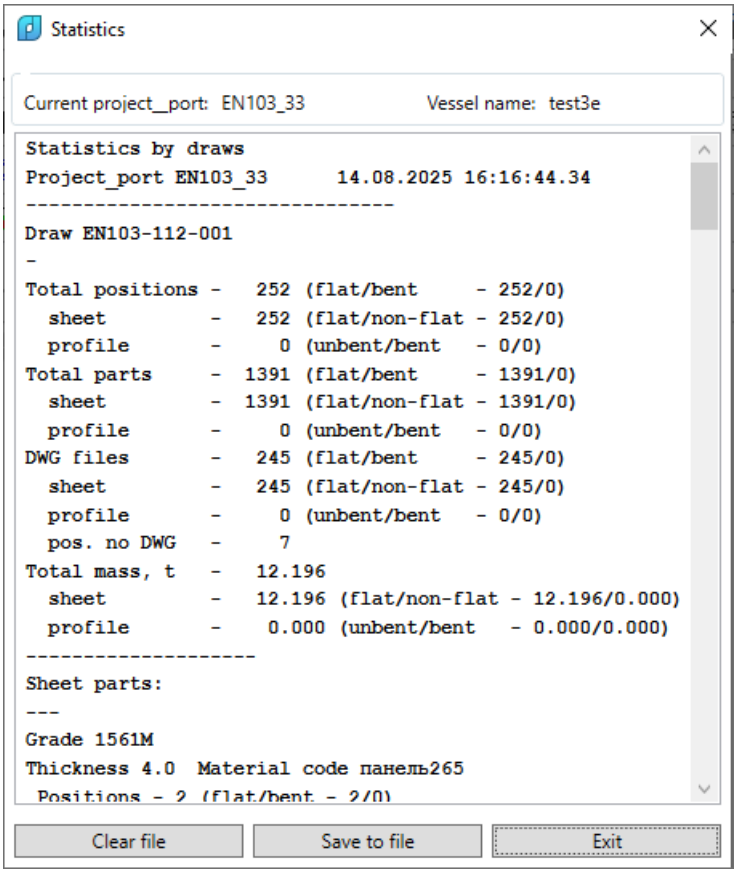
7.7. Statistics for draws

Menu item **STATISTICS > Statistics for draws** and button  of toolbar **Statistics** make calculations of summary data for materials with division by current project_port draws and differentiation by material grades. Command outputs calculation results to the window **Statistics** (dr. 126).

Results are divided by draws. First there are summary data, next there is statistics for sheet and profile parts of the draw.

For each material there are grade, thickness or profile name, positions quantity in specification, total quantity of parts (regarding multiplicities), quantity of part DWG files and summary mass. In parentheses there are data by flat and bended parts.

If draw has no profile parts then there is text **No profile parts**.



Drawing 126. Statistics by draws

Buttons **Save to file** and **Clear file** respectively allow to append results to file *Statistics by draws.txt* in subfolder Doc of current project_port or to clear this file before saving to it statistic data.

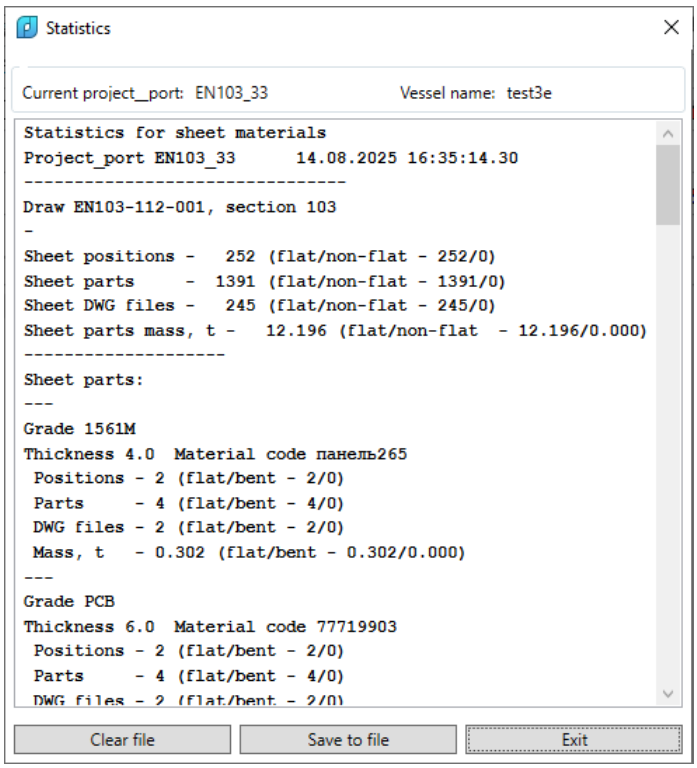
7.8. Statistics for sheet materials

Menu item **BDATA > STATISTICS > Statistics for sheets** and button  of toolbar **Statistics** calculate summary data for sheet materials with division by draws of the current project_port and with differentiation by material grades. Command outputs calculation results to window **Statistics** (dr. 127).

Results are divided by draws, sections. First there are summary data, next there is statistics for used sheet materials.

For each material there are grade, thickness, positions quantity in specification, total quantity of parts (regarding multiplicities), quantity of part DWG files and summary mass. In parentheses there are data by flat and bended parts.

Buttons **Save to file** and **Clear file** respectively allow to append results to file *Statistics for sheet materials.txt* in subfolder Doc of current project_port or to clear this file before saving to it statistic data.



Drawing 127. Statistics for sheet materials

7.9. Statistics for profile materials

Menu item **BDATA > STATISTICS > Statistics for profiles** and button  of toolbar **Statistics** calculate summary data for profile materials with division by draws of the current project_port and with differentiation by material grades. Command outputs calculation results to window **Statistics** (dr. 128).

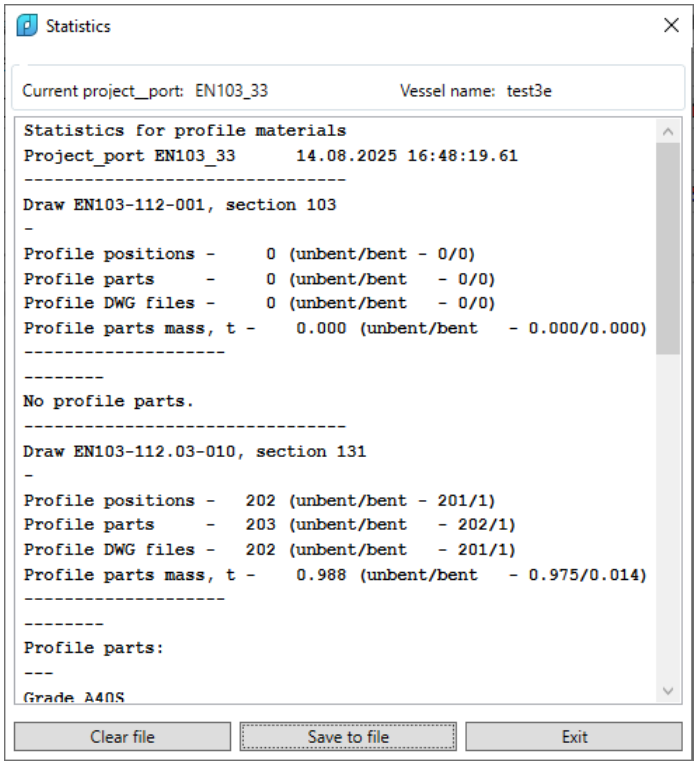


Рис. 128. Статистика по профильным материалам

Results are divided by draws, sections. First there are summary data, next there is statistics for used materials.

For each material there are grade, profile type, positions quantity in specification, total quantity of parts (regarding multiplicities), quantity of part DWG files and summary mass. In parentheses there are data by flat and bended parts.

Buttons **Save to file** and **Clear file** respectively allow to append results to file *Statistics for profile materials.txt* in subfolder Doc of current project_port or to clear this file before saving to it statistic data.

7.10. General control

Menu item **STATISTICS > General control** and button  of toolbar **Statistics** run analysis for searching the following errors in parts:

- no DWG file of part geometry (empty FILEGRAF in DB);
- losing DWG file of part geometry, if FILEGRAF is entered;
- using part material code (MATKOD) that is missing in table klsmater.dbf;
- incompliance of material type (KVIDMAT) for material code given in part features in specp.dbf, with type, written in klsmater.dbf;
- incompliance of material grade (MARKA) for material code given in part features in specp.dbf, with grade, written in klsmater.dbf;
- incompliance of sheet thickness (SS) for sheet material code given in part features in specp.dbf, with thickness, written in klsmater.dbf;
- incompliance of profile name (NOM_PROF) for profile material code given in part features in specp.dbf, with profile name, written in klsmater.dbf.

Program parses parts of current project_port. Results are being output to window **Statistics** (dr. 129).

In case of finding errors message lines are output with printing position number and section number of section. Here are sample messages:

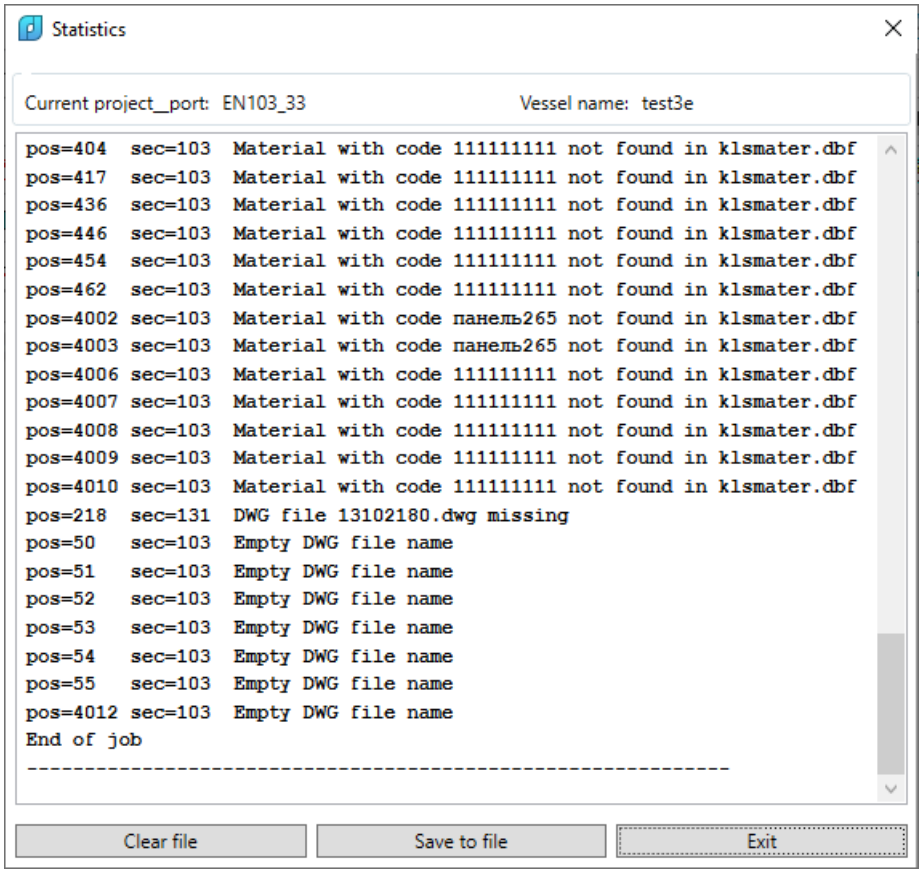
pos=60 sec=103 Material with code 11111111 has different MARKA in specp.dbf (PCBa) and klsmater.dbf (PCB)

pos=60 sec=103 Material with code 11111111 has different thicknesses in specp.dbf (9.5) and klsmater.dbf (9.0)

pos=218 sec=131 DWG file 1310218.dwg missing

pos=2 sec=134 Empty DWG file name

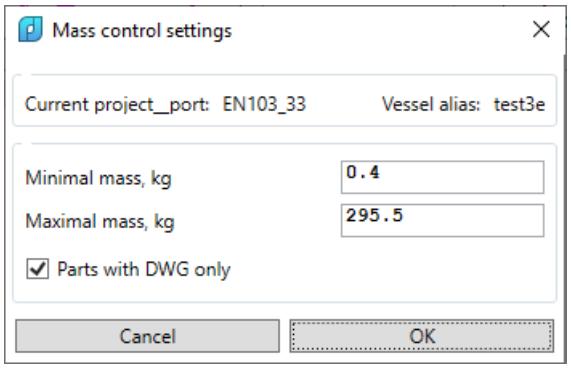
Buttons **Save to file** and **Clear file** respectively allow to append results to file *General control.txt* in subfolder Doc of current project_port or to clear this file before saving to it results.



Drawing 129. Results of general control

7.11. Mass control

Menu item **STATISTICS > Mass control** and button  of toolbar **Statistics** run analysis of current project_port parts for unusual values of mass. Command opens preliminary window for entering calculation settings (dr. 130).

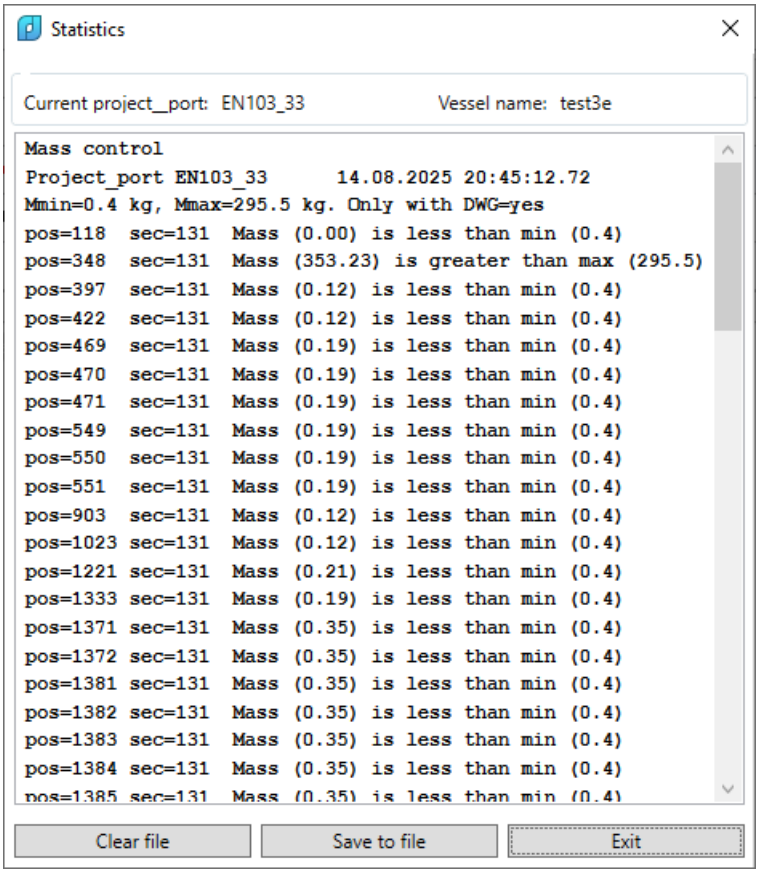


Drawing 130. Window **Mass control settings**

User is to enter limit values **Minimal mass** and **Maximal mass** (in kg). If part mass will leave these limits then message will be generated. Checking box **Parts with DWG only** means that the program must not verify masses for parts without geometry DWG files.

Analysis summary isoutput to the window **Statistics** (dr. 131).

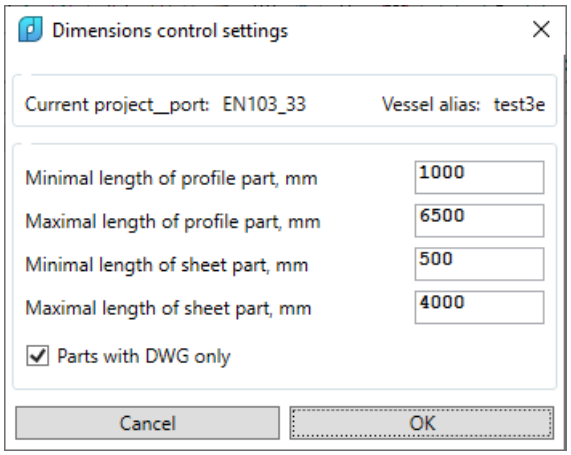
Buttons **Save to file** and **Clear file** respectively allow to append results to file *Mass control.txt* in subfolder Doc of current project_port or to clear this file before saving to it results.



Drawing 131. Results of mass control

7.12. Dimensions control

Menu item **STATISTICS > Dimensions control** and button  of toolbar **Statistics** analyze parts gabarits for current project_port. Command opens introductive window, to define calculation settings (dr. 132).



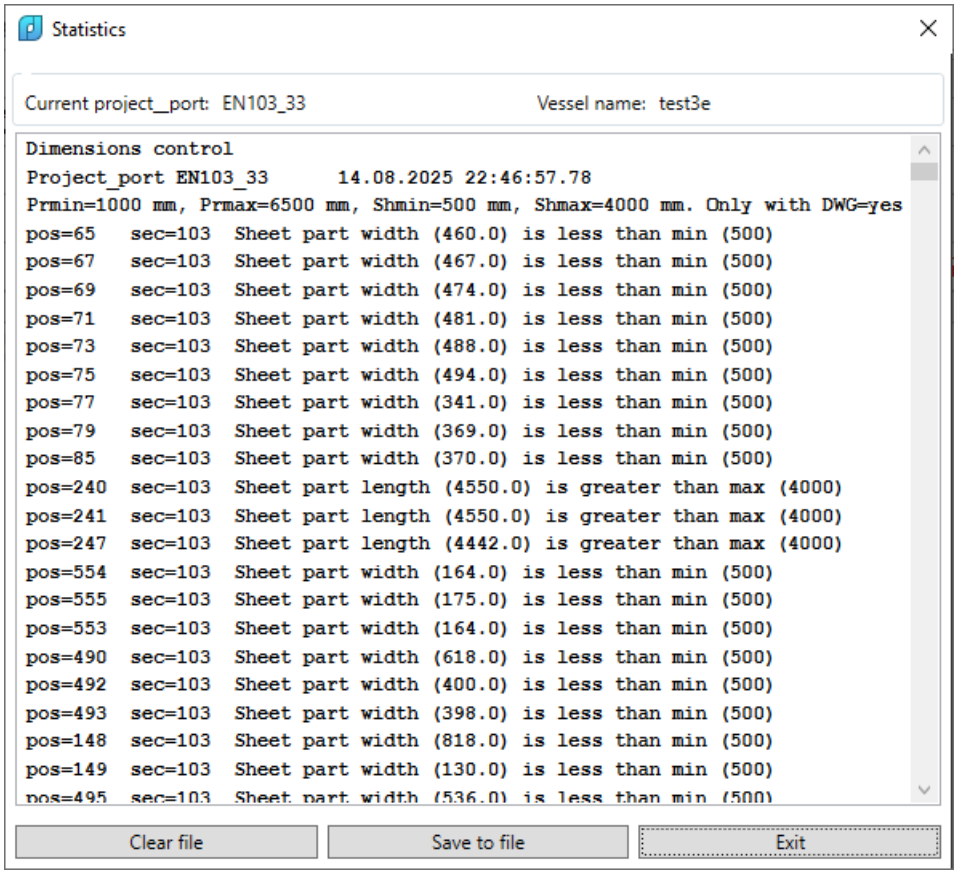
Drawing 132. Window **Dimensions control settings**

It is necessary to enter values **Minimal length of profile part, Maximal length of profile part, Minimal length of sheet part** and **Maximal length of sheet part** (in mm). For sheet parts width is a least dimension of described rectangle, and length is a greater dimension.

If part gabarits in DB will be outside limits then a message will be generated. Checkbox

Parts with DWG only tells program to skip parts without geometry DWG file.

Analysis summary is output in the window **Statistics** (dr. 133).



Drawing 133. Results of dimensions control

Buttons **Save to file** and **Clear file** respectively allow to append results to file *Dimensions control.txt* in subfolder Doc of current project_port or to clear this file before saving to it results.

8. OTHER COMMANDS

8.1. Command Current

Command **Current** (button i) allows to get all the current parameters and settings of **N-Ship** (current project, order, draw, section, block number, position number, user work number, etc.), as well as specific summary data (dr. 134).

Parameters are output in the text screen too:

Current system settings...

System folder="C:\\NSHIP\\"

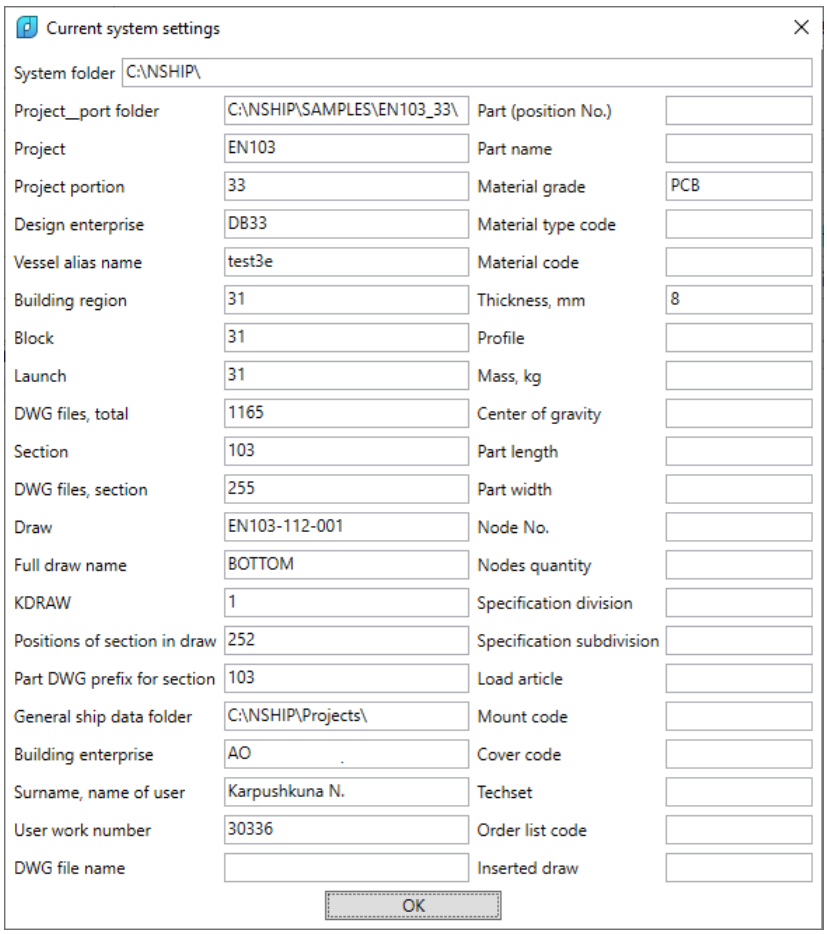
Project_port folder="C:\\NSHIP\\SAMPLES\\EN103_33\\"

Project="EN103"

Project portion="33"

Design enterprise="DB33"

Alias name="test3e"



Drawing 134. Window **Current system settings**

Building region="31"

Block="31"

Launch="31"

Part DWG files total=1165

Section="103"

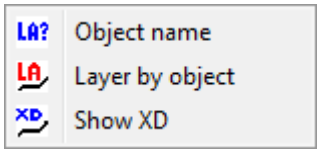
Part DWG files in section=255

Draw="EN103-112-001"

and so on.

8.2. Commands of SET submenu

Submenu **SET** has the following structure (dr. 135):



Drawing 135. 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 parame-

ters 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:

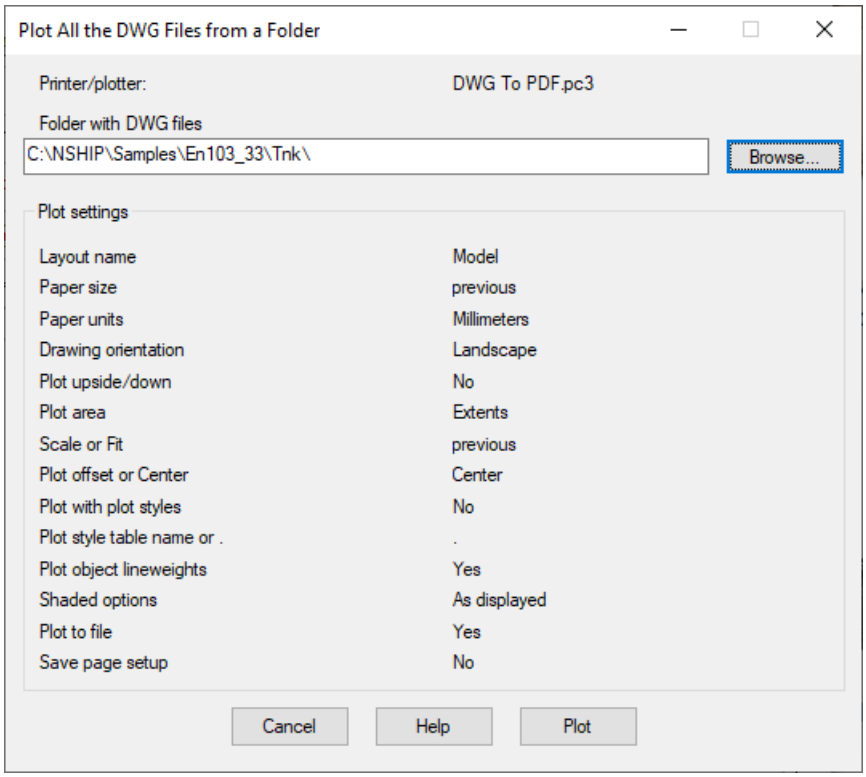
Object 0: ((-1 . <Entity name: -139e38>) (0 . "MTEXT") (330 . < Entity name: -13b308>) (5 . "131") (100 . "AcDbEntity") (67 . 0) (410 . "Model") (8 . "FASKA") (62 . 7) (100 . "AcDbMText") (10 85.3083 285.974 0.0) (40 . 8.375) (41 . 0.0) (46 . 0.0) (71 . 7) (72 . 5) (1 . "\\A1;{\\H1.0x;\\SChback/6x40%%d;}") (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**.

8.3. 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. 136).



Drawing 136. 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 dialog 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.

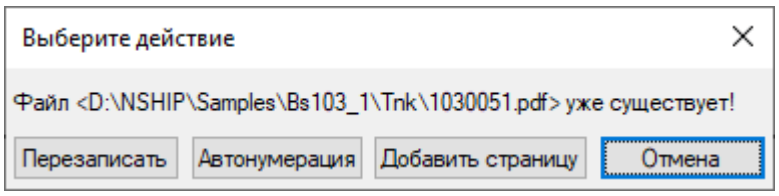
Two parameters are inherited from the previous plotting:

Paper size;

Scale or Fit.

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

If during printing to PDF file there will be found existing file with the coinciding name, then nanoCAD will produce a message for rewriting (dr. 137).



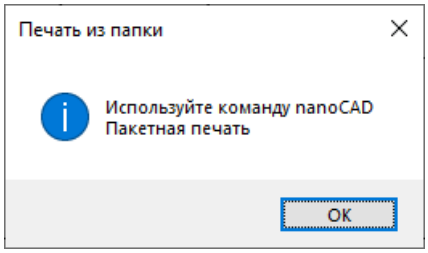
Drawing 137. Message on rewriting PDF file

After pressing in the dialog box button **Plot** printing is being executed, with using printer registered in nanoCAD 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.

If message **Cancel all changes? [Yes/No]** appears, then reply **Yes**.

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 is included only for help on group printing. After click on button **Plot** there will be a message (dr. 138).



Drawing 138. Message of readdressing to command Batch plot

8.4. Other commands

Other commands call help system or change user interface language, verifying license state or system build version.