



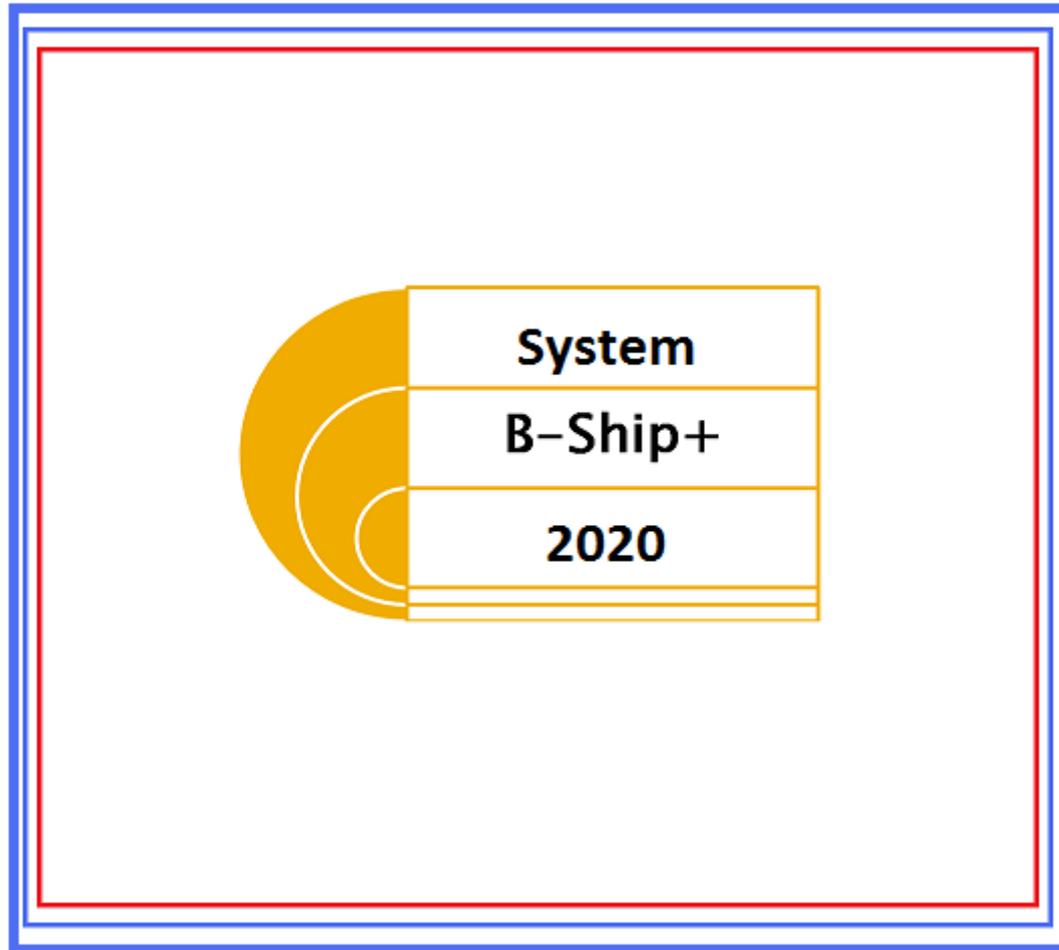
B-Ship+ **CAD/CAM system** **for shipbuilding and machinery**

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PhD Math.

<http://poleshchuk.spb.ru/cad/eng.html>

npol50@yandex.ru

Splash Screen

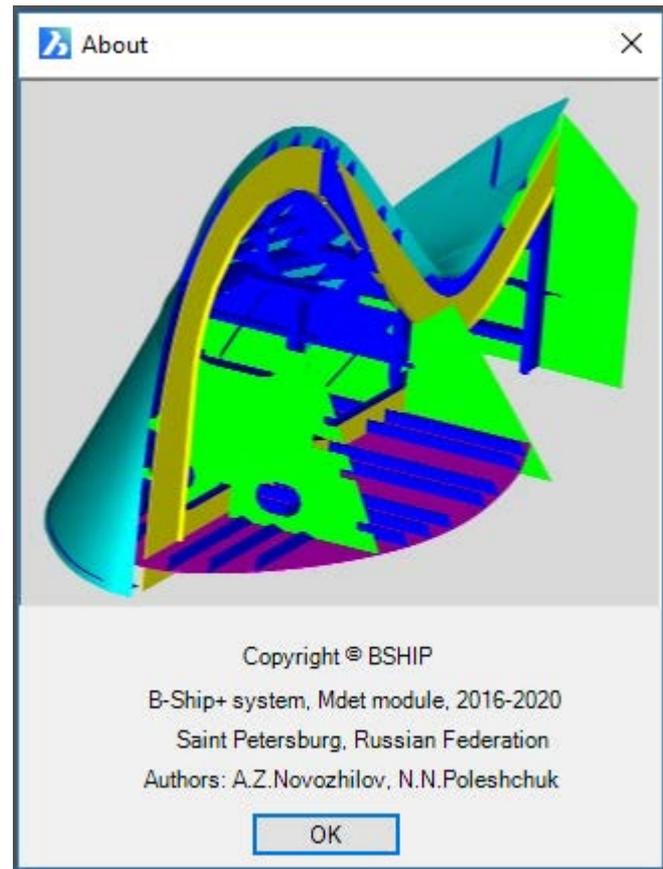
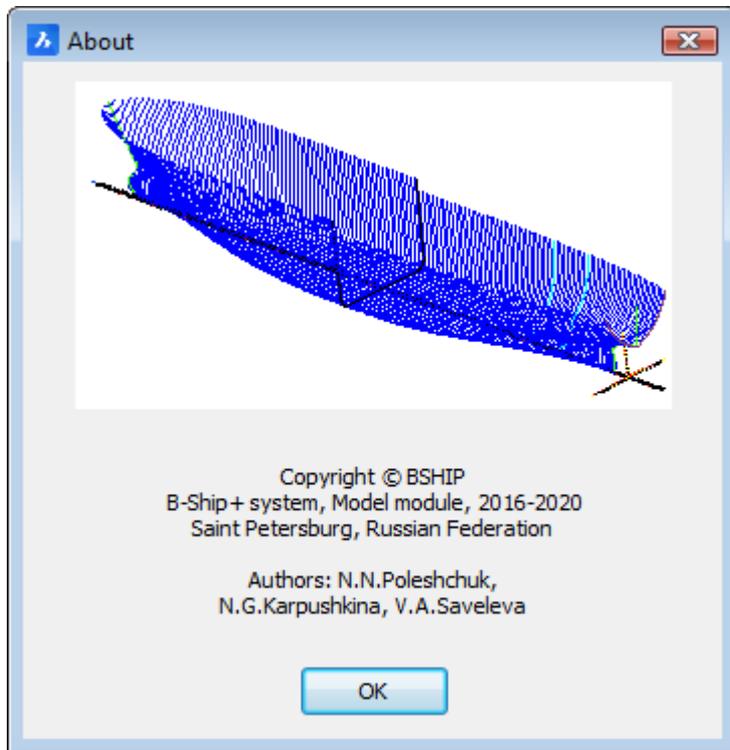


Application Field

- Shipyards (shipbuilding and shiprepair)
- Machinery enterprises
- Workshops working with sheet metal
- Design bureaux creating documents and CNC programs for ship or machine building

User Interface Language Selection



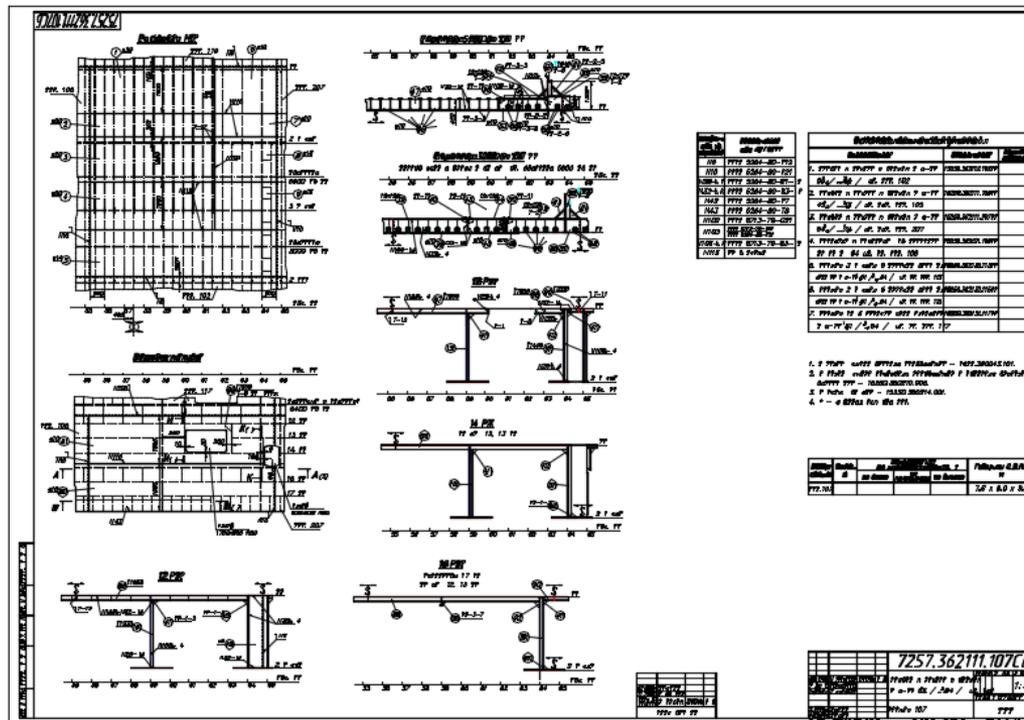
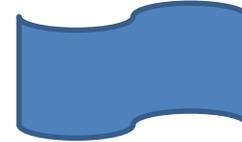


Main Goal

- The central object is **part**, or piece of structure (manufactured from sheet metal or profile bar).
- The system generates various information and docs for part manufacturing (for workshop technological operations).
- The most difficult technological operation is sheet **cutting** with CNC programs based on **nesting maps** of the sheet metal. CNC cutting programs can be extended with edge handling info (angle of bevel etc.).

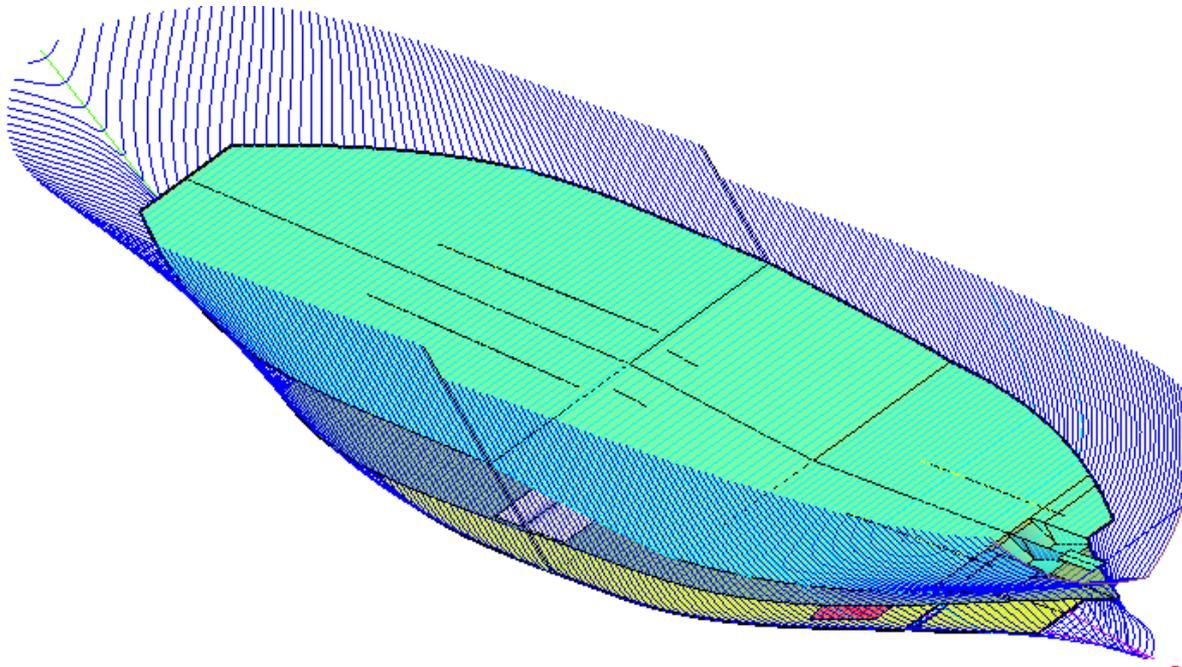
Input data (main path)

- Design drawings (dwg files)
- Parts lists



Input data (extended path)

- 3D wireframe or surface hull shell model (dwg)
- Imported 3D model sections from heavy CAD systems (Aveva, Foran, etc.)



Main Output

- CNC programs for parts manufacturing:
 - cutting routes
 - marking lines for layouts
 - marking text for labels
- DWG documents for parts (working part sketches)
- DWG documents for sheet nesting maps
- Excel tables with data for parts, nesting maps

Extended Output

- Curved shell sheets development (approximation)
- Shell surface assembly and bending tools (templates, schemes etc.)
- Objects in 3D model built with specific drawing tools (loft, plaz calculations)

- Hull loftbooks (part 1 and part 2)
- Shell expansion

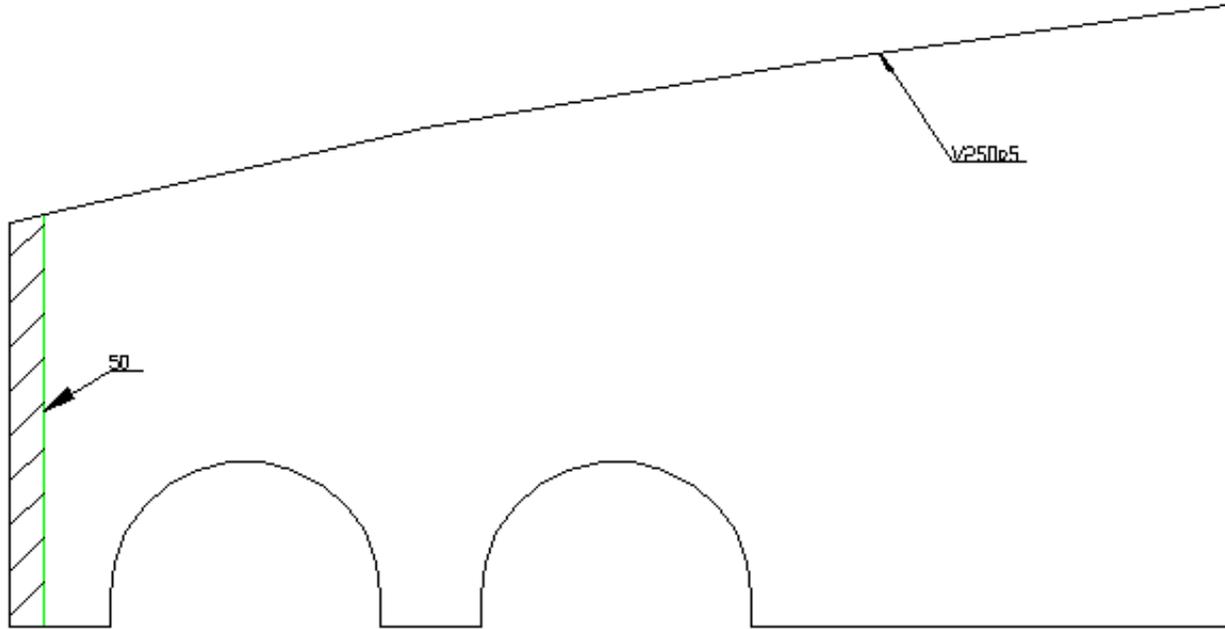
Sample CNC Programs

- 3
- BS103.00900001 17/08/28 19-16-28 6000.0 1600.0 9.0
- 4
- 17
- 5
- +1377+866
- 6
- 7
- ++100
- ++9644
- +13830+
- +-9468
- -13830-176
- 8
- 5
- +15366-73
- 6
- 7
- -71+71
- -500+493-485+9+
- ++3902
- +309+309
- +4783+
- +308-309
- +-3833
- -499-506-15-485+
- -4401-56

- G71
- G90
- G162
- #CS ON [V.E.START_X,V.E.START_Y,0,0,0,V.E.ROTATION]
- G00 X0.000 Y0.000
- M190
- M00
- G00 X137.70 Y86.60
- M00
- T21
- G41 D21
- G261
- N1 M07
- G01 X137.70 Y96.60
- G01 X137.70 Y1061.00
- G01 X1520.70 Y1061.00
- G01 X1520.70 Y114.20
- G01 X137.70 Y96.60
- M08
- G260
- G40 D21
- G00 X1674.30 Y89.30
- G41 D21
- G261
- N2 M07
- G01 X1667.20 Y96.40
- G03 X1617.20 Y145.70 I-48.50 J0.90

Sample Part Sketch Document

Проект BS103	Ном. листа 15	Листов 26	Затух. 1	Маршрутно-технологическая карта на деталь						Имя альбома	№ альбома
Комплект	Чертеж		Ном. секции	Наименование и размеры	МН. дет.	Кол.	Тем. норма шт./ч	Масса общая, кг	Марка материала	Номер карты раскроя	Маршрут комплектации
	BS103-112-001		103	ЛИСТ 5В	4Б	1	79.4	79.4	РСВ	00800005	



Операция																			
Объем работ																			
Норма времени																			
Разм. план	Каралева О.Д. 07.07.19																		Лист
Технолог																			
	Подпись	Дата	Иж.	Лист	№ документа	Подпись	Дата												

Сквозной - 07.07.19 Пр. BS103 Зет. 1

Sample Excel Spreadsheet (List of Parts Used in a Nesting Map)

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N
2														
3	PROJECT	BS103												
4	ORDER:	test01												
5	PORTION	1												
6														
7														
8														
9	Draw:	BS103-112-001												
10														
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Sample Excel Spreadsheet (List of Nesting Maps)

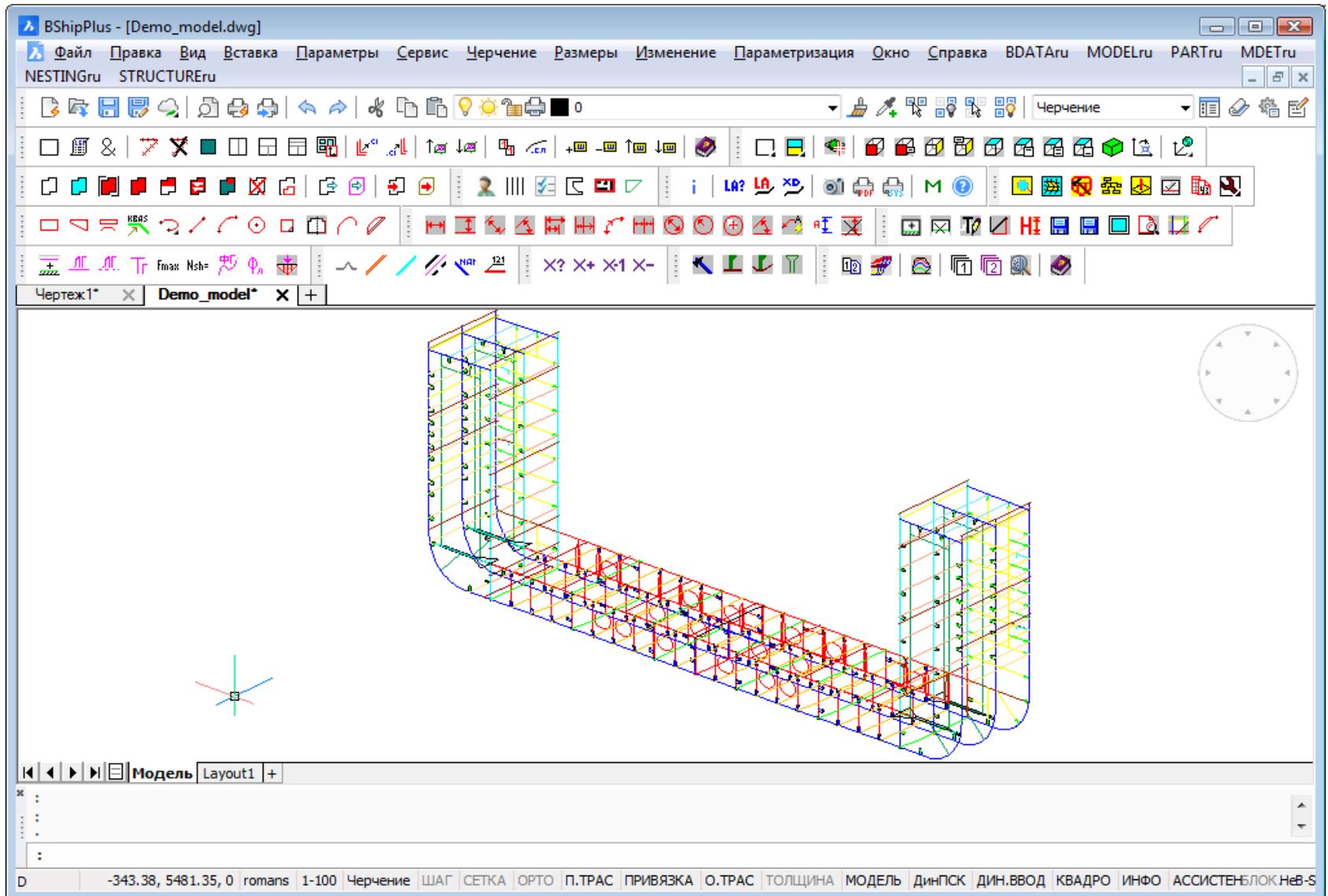
LIST OF NESTING MAPS SHEET FLAT																	
(Created on 25.01.2020)																	
NN	Nesting map	Thck mm	Grade	Gabarits mm	Qty parts	Nest. ratio	Length cut	Length jumps	Qty prcs	Length mark i.	Length mark j.	Qty mrk-ons	Mass parts	Mass scraps	Date		
1	00400001	4.0	PCB	1600 x 6000	26	0.86	0	0	0	0	0	0	260.3	0.0	27.10.19		
2	00400002	4.0	PCB	1600 x 6000	15	0.84	0	0	0	0	0	0	253.8	0.0	01.11.19		
3	00400003	4.0	PCB	1600 x 6000	35	0.75	0	0	0	0	0	0	224.6	0.0	20.10.19		
4	00700002	7.0	PCB	1600 x 6000	13	0.68	0	0	0	0	0	0	355.2	65.1	23.10.19		
5	00700003	7.0	PCB	1600 x 6000	7	0.65	0	0	0	0	0	0	339.7	0.0	20.10.19		
6	00700004	7.0	PCB	1600 x 6000	13	0.69	0	0	0	0	0	0	356.9	0.0	20.10.19		
7	00800001	8.0	PCB	1600 x 6000	25	0.56	45370	15040	25	0	0	0	353.6	36.6	03.11.19		
8	00800002	8.0	PCB	1600 x 6000	3	0.76	0	0	0	0	0	0	453.1	46.3	17.10.19		
9	00800003	8.0	PCB	1600 x 6000	8	0.72	0	0	0	0	0	0	432.3	0.0	29.10.19		
10	00800005	8.0	PCB	1600 x 6000	14	0.42	0	0	0	0	0	0	252.6	199.3	27.10.19		
11	00800006	8.0	PCB	721 x 1600	4	0.69	0	0	0	0	0	0	50.2	0.0	23.10.19		
12	00900001	9.0	PCB	1600 x 6000	3	0.07	0	0	0	0	0	0	92.1	952.6	25.10.19		
13	00900002	9.0	PCB	1600 x 6000	4	0.10	0	0	0	0	0	0	65.8	588.2	04.11.19		
14	00900003	9.0	PCB	1600 x 6000	2	0.07	0	0	0	0	0	0	44.9	588.9	02.11.19		
15	00900004	9.0	PCB	1600 x 6000	3	0.18	0	0	0	0	0	0	124.7	520.0	03.11.19		
16	00900005	9.0	PCB	1600 x 6000	2	0.10	0	0	0	0	0	0	68.9	597.7	01.12.19		
17	01000001	10.0	PCB	1600 x 6000	34	0.67	0	0	0	0	0	0	529.8	0.0	20.10.19		
18	01000002	10.0	PCB	1600 x 6000	55	0.74	0	0	0	0	0	0	633.7	0.0	21.09.19		
19	01000003	10.0	PCB	1600 x 6000	149	0.72	0	0	0	0	0	0	535.0	0.0	21.09.19		
20	01000004	10.0	PCB	1600 x 6000	323	0.66	0	0	0	0	0	0	497.4	0.0	21.09.19		
21	01000005	10.0	PCB	1600 x 6000	323	0.66	0	0	0	0	0	0	497.4	0.0	21.09.19		
22	01000006	10.0	PCB	1600 x 6000	171	0.35	0	0	0	0	0	0	263.3	158.1	16.10.19		
Created	Verified															Sheet	2
															Sheets	5	
					B-Ship+	N doc	Sign	Date									

B-Ship+ Modules

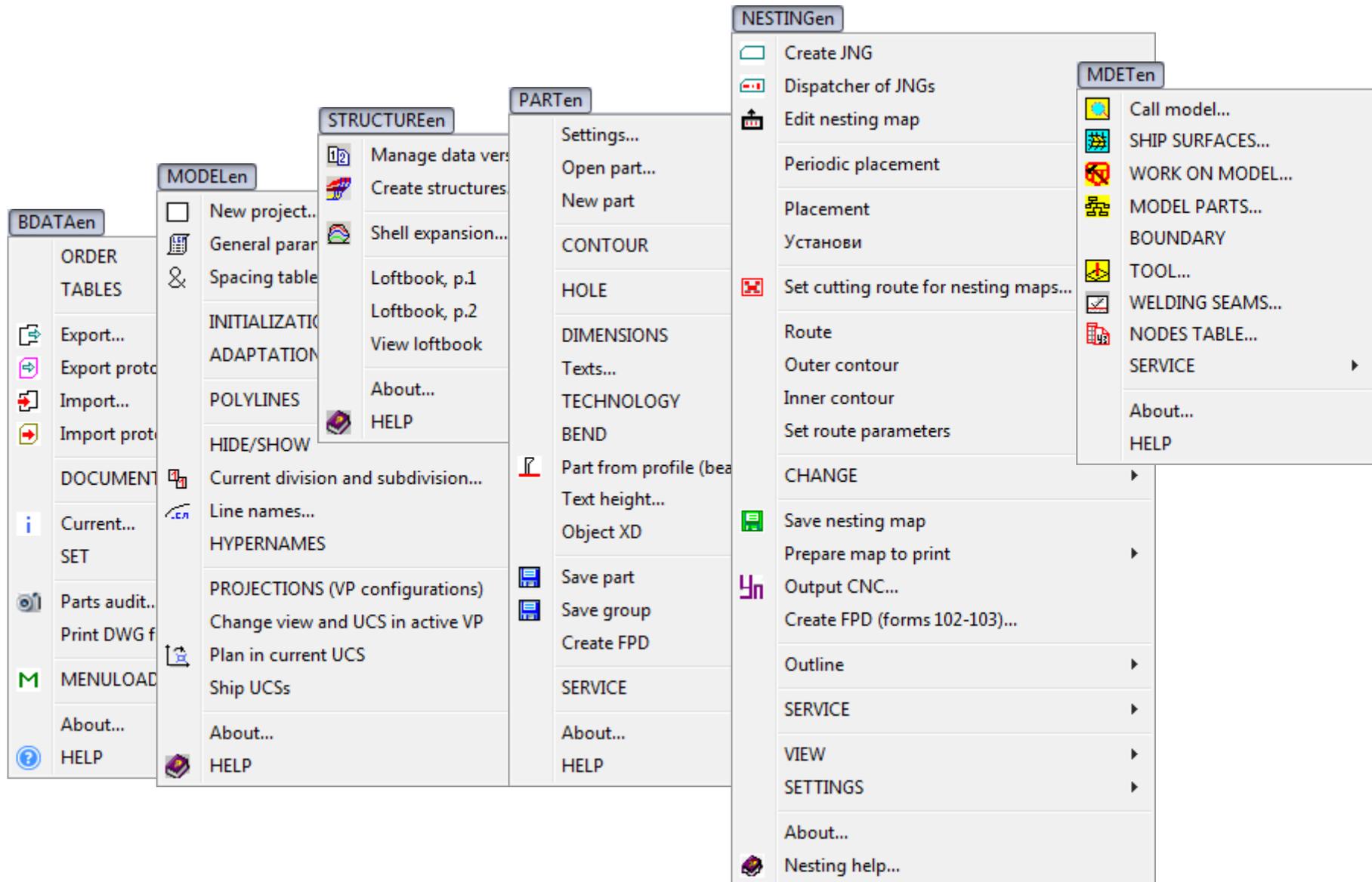
- **Bdata** – DB management
- **Model** – preparation of 3D model
- **Structure** – building decks and platforms inside 3D model
- **Part** – creation of sheet and profile parts
- **Mdet** – shell development, assembly schemes
- **Nesting** – sheet nesting, CNC programs

English and Russian interfaces are available.

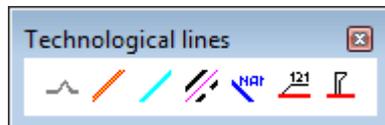
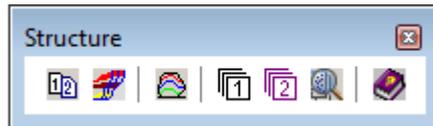
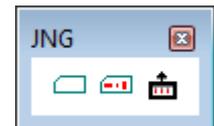
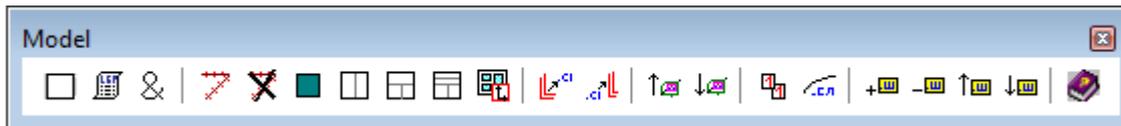
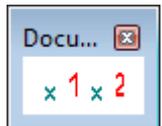
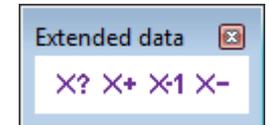
Application Window



User Interface (Menus Eng)



User Interface (Toolbars)



Settings Window (sketch)

Set part attributes

Technological texts: AO_PS

User: Bell Jimmy W.N. - 4823

Main label: Vertical Horizontal

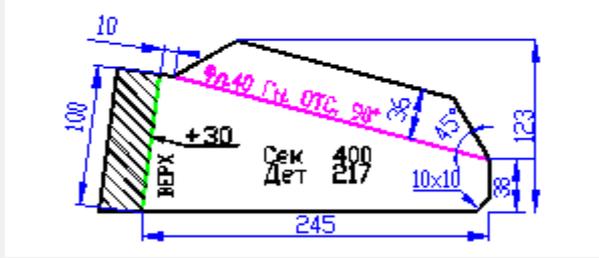
Label contents: Section, part Draw, part Draw, section, part

Allowance: Without hatch With hatch Include allowance in dimensions

Angle: 45

Dimensions on part

Part drawing pattern



Change dimension text height <1.0>: 1

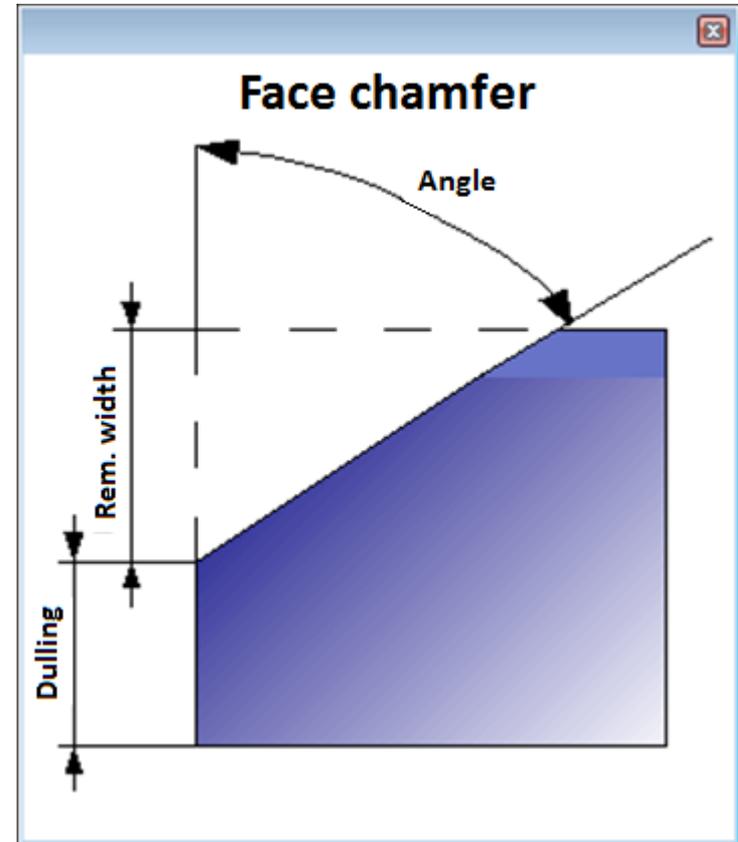
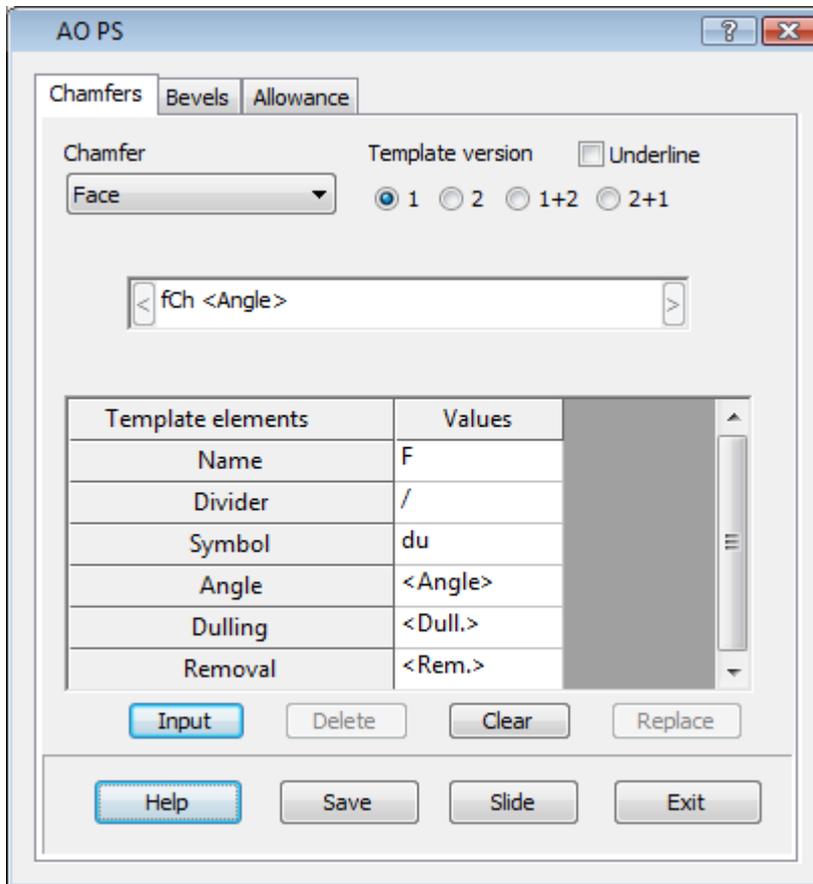
Parameters of management, editing, saving and marking

Buttons: Manage requests..., Saving part..., Editing..., Technology..., Apply, Exit, Help

Select dimensions color: [Color bar]

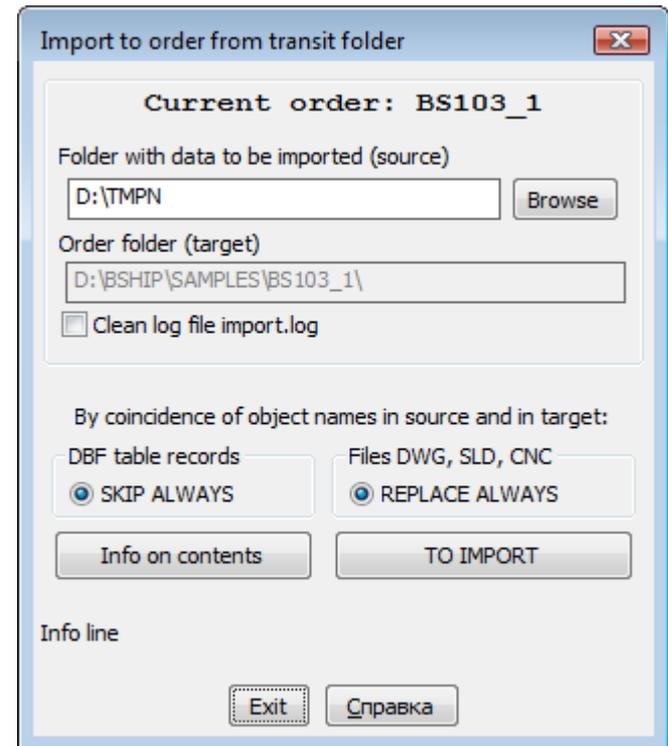
Current dimensions color: 5

Settings Window (chamfer)



Bdata: Service Management (Portions of the Entire Ship Order)

- FoxPro DBMS, **Bdata** module
- Order creation, activation
- Work with tables of users, materials, drawings, parts, nesting maps etc.
- Export & import of orders



New Order

Create new order X

Current order: BS103_1

All registered orders

- 12345_391
- BBBBB_1
- BS103_1
- EN103_1
- EN115_2
- TESTB_1

Place for folder of a new order (200):

Project (8):

Project portion No. (3):

Order alias name (6):

Building enterprise:

Design enterprise (30):

Standard (4): Number

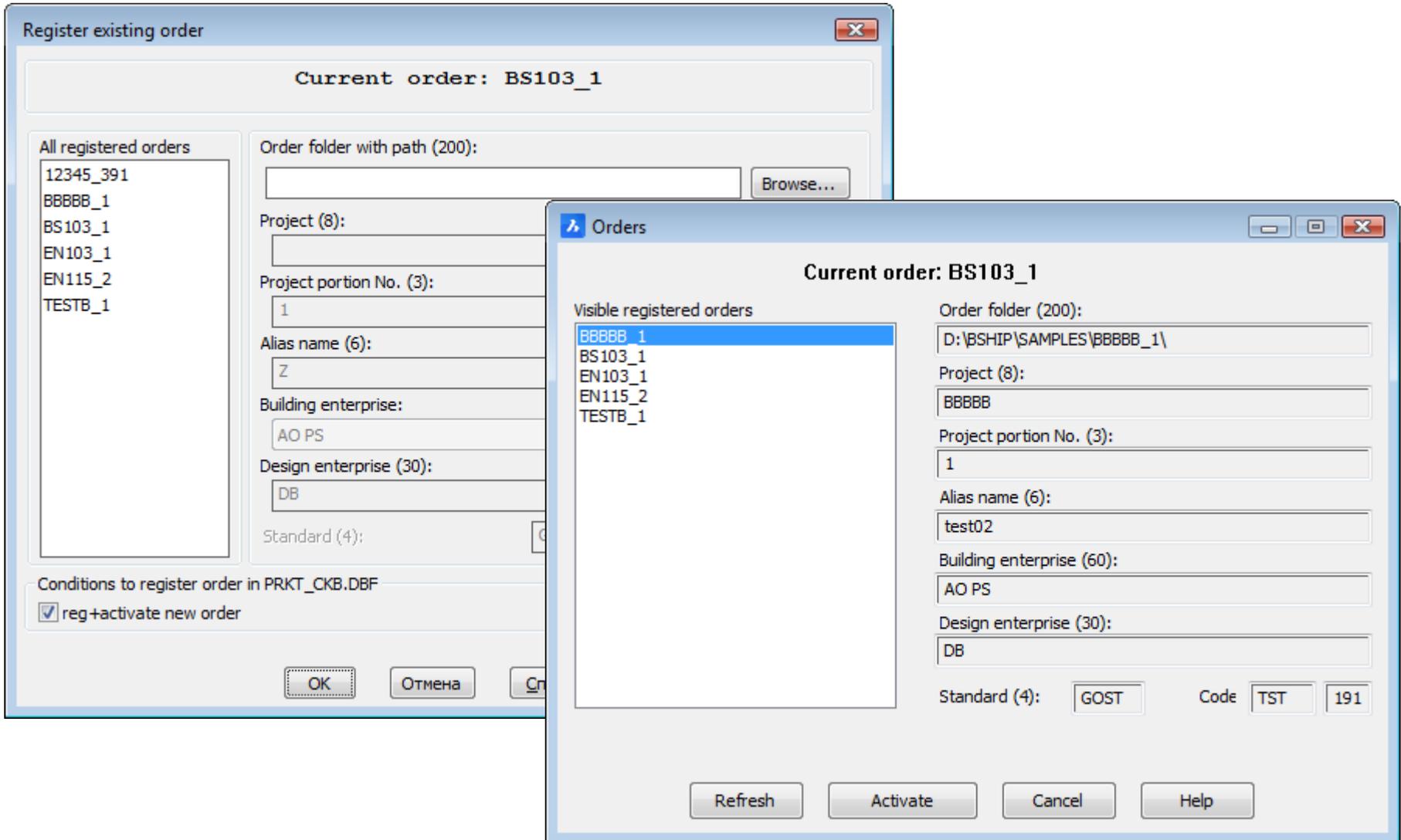
Copy materials from sample order

Conditions to register order in PRKT_CKB.DBF

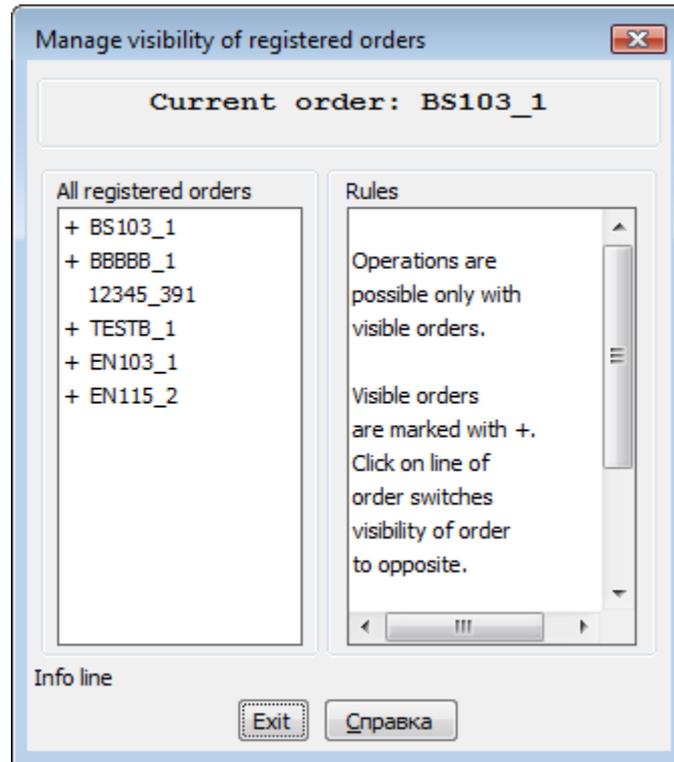
register new order reg+activate new order

Order EN115_2 is already registered

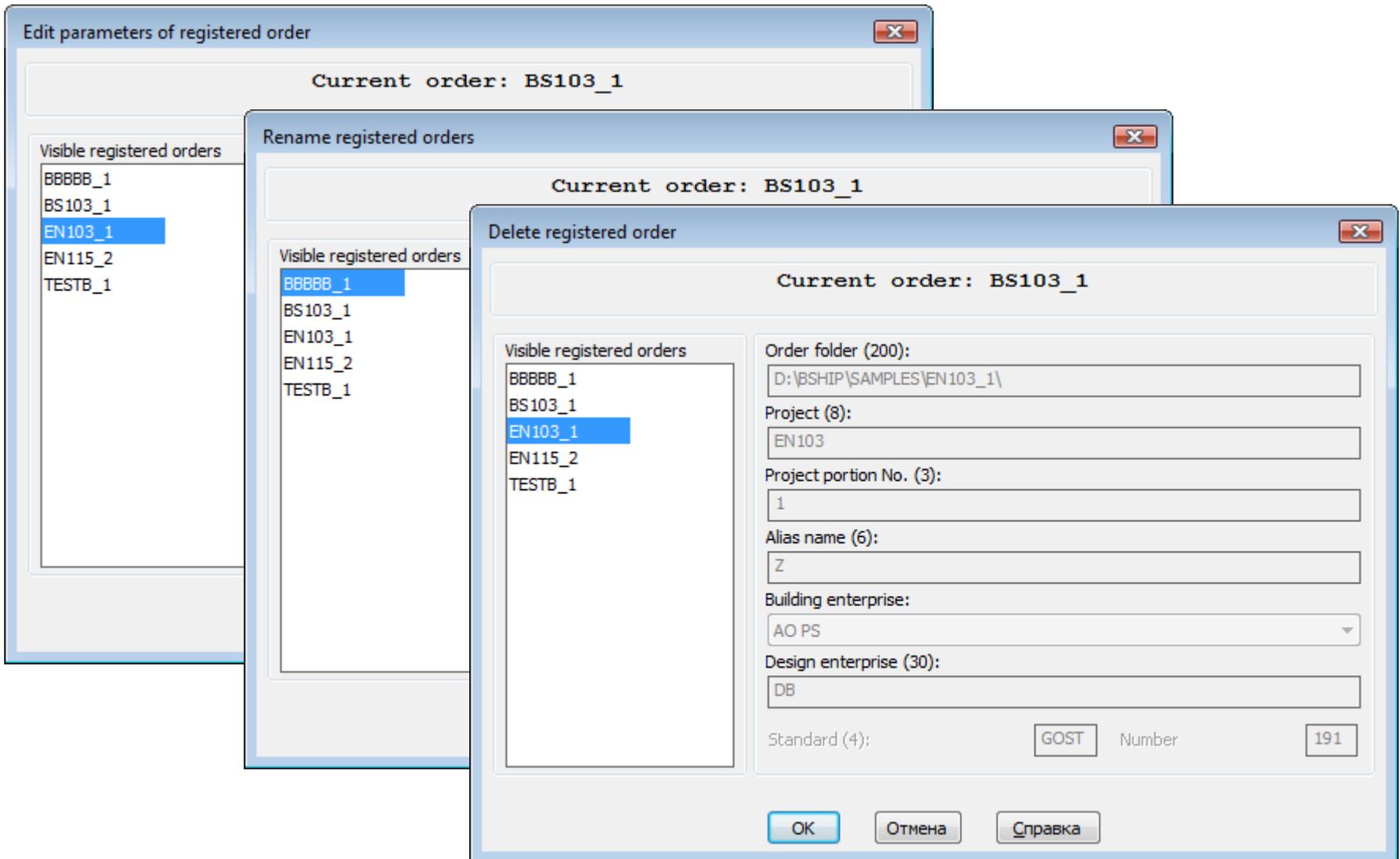
Registration, Activation of an Order



Hiding Inactive Orders



Editing, Renaming, Removing Order



Order Tables. Users

View and edit users table ✕

Current order: EN103_1

Current user: 30056

Order users	Data of selected user
30056 Korolainen O. Constructor	Work number (6) <input type="text" value="30056"/>
30336 Karpushkuna N. Technologist	Surname, name (20) <input type="text" value="Korolainen O."/>
	Work position (15) <input type="text" value="Constructor"/>

Info line

Activate Add new Delete Replace Exit Справка

Materials Table

View and edit materials table ✕

Current order: EN103_1

Material type: BULB NONSYMM. ▼

Materials in order	Material properties	Profile parameters
00304254255 PCA32 14A L=6000 11.05	Standard code (11) 00304254474	Heght (7.2) 200
00304254256 PCA32 14B L=6000 13.23	Grade (25) PCA32	Sec. area (7.2) 27.36
00304254376 PCA32 18A L=12000 17.41	Thickness (7.1) 10	XCS (7.2) 10.2
00304254474 PCA32 20A L=12000 21.47	Width (7.1) 44	YCS (7.2) 123.5
00304254782 PCA32 24A L=12000 30.42	Length (7.1) 12000	P1 (7.2) 8
00309453012 A40S 5 L=6000 2.25	Weight of a meter (8.3) 21.47	P2 (7.2) 0
00309453056 A40S 6 L=6000 3.36	Material rule (16) 5521-93	P3 (7.2) 30
00309453074 A40S 7 L=6000 3.98	Sortament rule (16) 21937-76	P4 (7.2) 0
00309453098 A40S 8 L=6000 4.58	Select profile ▼	H1 (7.2) 15
00309453128 A40S 9 L=6000 5.52	Profile No. (11) 20A	H2 (7.2) 160
00309453aa1 A40S 10 L=6000 6.76		

◀ ||| ▶

Add new Delete Replace Exit Справка

Draws Table

View and edit draw properties table ✕

Current order: EN103_1
Current draw: EN103-112-002

Draws in order	Properties of selected draw
EN103-112-001	Building region (2) <input type="text" value="3"/>
EN103-112-002	Block (6) <input type="text" value="3"/>
EN103-112.03-010	Section (6, no spaces) <input type="text" value="131"/>
	Draw (5-25) <input type="text" value="EN103-112.03-010"/>
	Full draw name (55): <input type="text" value="Bottom section 98+300...110+300 fr."/>
	KDRAW: <input type="text" value="2"/>
	Techset (15) <input type="text" value="1"/>
	Construction group code (3) <input type="text" value="1"/>
	Launch No. (5): <input type="text" value="1"/>
	Parts DWG prefix (4): <input type="text" value="131"/>
	Number of parts <input type="text" value="1415"/>
	Number of positions <input type="text" value="903"/>
	Number of parts DWG <input type="text" value="903"/>

Parts List Table (Specification)

View and edit part properties table

Current order: EN103_1

Draw: EN103-112-002

Fresh draw parts list

Filter: all sheet prof

Search by position No. Number (7): Find

Draw parts (positions)

- Select position-
- *1 [Part s10]1 PCD32 10x400x1200 31.09
- *2 [Part s16]3 PCD32 16x300x450 9.1
- _101 [Beam 14B]3 PCA32 14B L=0 0
- _102 [Part]1 PCA32 24A L=0 0

Main properties of selected part

Position (4): Quantity (4): Free

Symmetric (4): Side: W.N.: Nested

Full name (80):

Material type:

Material code:

Thickness: Width: Length:

Profile No.: KDRAW: KDRAWs:

Grade: Bending Cutting

Use auxiliary properties

Section: Subsection (2):

Node (100): Nodes qty (2):

Inserted draw number (20):

Techset (15): Order doc code (5):

Spec. division code: Spec. subdivision code:

Technology

Mounting code: Cover code (3): Container (8):

Weight load

Load article code: Mass (9.2):

Length (7.1): Width (7.1):

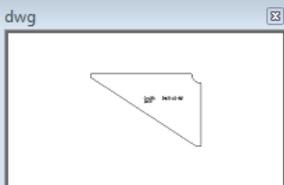
X c.m. (10.2): Y c.m. (10.2): Z c.m. (10.2):

2010002.dwg

+ BricsCAD Add new position Replace

Help Delete position Exit

dwg



Sheet Nesting Maps Table

View and edit nesting map properties ✕

Current order: EN103_33

Nesting maps in order

_ 31 00700001 52 1 PCB 7x1600x6000 (0) 0 0 0
_ 31 00700002 52 1 PCB 7x1600x6000 (0) 0 0 0
_ 31 00700003 52 1 PCB 7x1600x6000 (0) 0 0 0
_ 31 00700004 52 1 PCB 7x1600x6000 (1) 0 0 0
_ 31 00700005 52 1 PCB 7x1600x6000 (2) 0 0 0
_ 31 00800001 52 1 PCB 8x1600x6000 (0) 0 0 0
_ 31 00800002 52 1 PCB 8x1600x6000 (0) 0 0 0
_ 31 00800003 52 1 PCB 8x1600x6000 (0) 0 0 0
_ 31 00800004 52 1 PCB 8x1600x6000 (0) 0 0 0
31 00800005 52 1 PCB 8x1600x6000 (4) 0 0 0
_ 31 01000006 52 1 PCB 10x1600x6000 (2) 0 0 0
_ 37 01000007 52 1 PCB 10x1600x6000 (2) 0 0 0

Properties of selected nesting map

Map name (8)	00800005	Multiplicity	1	Scraps qty	4
Launch No. (5)	31	Cutting type (3)	52	Parts qty	14
Thickness	8	Width	1600	Length	6000
Material grade (25)	PCB				
<input type="checkbox"/> Route generated	<input type="checkbox"/> NC generated				
Nesting ratio (4.2)	0.42	Cut kerf halfwidth (3.1)	1.5		
Cut length (7)	0	Cut jumps length (7)	0		
Mark lines length (7)	0	Mark jumps length (7)	0		
Pierce qty (3)	0	Qty of marks-on (3)	0		
W.N. of nesting author (6)	30336	Nesting date (8)	27.09.20		
W.N. of route author (6)	0	Route date (8)			
W.N. of NC author (6)	0	NC date (8)			

00800005 08.09.20 PCB-8x1600x6000 E-15 K-01424



Help
Parts and scraps
Rename
Edit properties
Delete
Exit

Sheet Scraps Table

View and edit scraps table ✕

Scraps table: D:\BSHIP\OTXOD.DBF

List of scraps

BS103_1 00800005_3 PCB 8x522x552 13 "" [_0] ""
BS103_1 00800005_4 PCB 8x721x1600 14 "DWG" [_0] ""
BS103_1 01000015_2 PCB 10x1600x2356 69 "" [_0] ""
BS103_1 01000016_1 PCB 10x755x1340 81 "" [_0] ""
BS103_1 01000016_2 PCB 10x605x1480 80 "" [_0] ""
BS103_1 01000016_3 PCB 10x1600x3825 79 "" [EN103_33] "test3e
BS103_1 01000016_4 PCB 10x755x1340 143 "" [_0] ""
BS103_1 01000017_1 PCB 10x575x1450 83 "" [_0] ""
BS103_1 01000017_2 PCB 10x1360x1600 82 "" [_0] ""
EN103_33 00700004_1 PCB 7x511x1129 3 "" [_0] ""
EN103_33 00700004_1 PCB 7x511x1129 8 "" [_0] ""
EN103_33 00700005_1 PCB 7x714x1037 1 "" [_0] ""
EN103_33 00700005_2 PCB 7x1600x4540 2 "" [_0] ""
EN103_33 00800005_1 PCB 8x641x1777 4 "" [_0] ""
EN103_33 00800005_2 PCB 8x570x1040 5 "" [_0] ""
EN103_33 00800005_3 PCB 8x522x552 6 "" [F1_22] ""
EN103_33 00800005_4 PCB 8x721x1600 7 "" [_0] ""
EN103_33 01000006_1 PCB 10x600x610 93 "" [_0] ""
FN103_33 01000006_2 PCB 10x1600x5390 92 "" [0] ""

Scrap taken FROM

Project FROM (8)	<input type="text" value="BS103"/>
Portion FROM (3)	<input type="text" value="1"/>
Alias FROM (6)	<input type="text" value="test01"/>
Launch FROM (5)	<input type="text" value="11"/>
Nmap FROM (8)	<input type="text" value="01000016"/>

Scrap sent TO

Project TO (8)	<input type="text" value="EN103"/>
Portion TO (3)	<input type="text" value="33"/>
Alias TO (6)	<input type="text" value="test3e"/>
Launch TO (5)	<input type="text" value="31"/>
Nmap TO (8)	<input type="text" value="01000006"/>

Properties of selected scrap

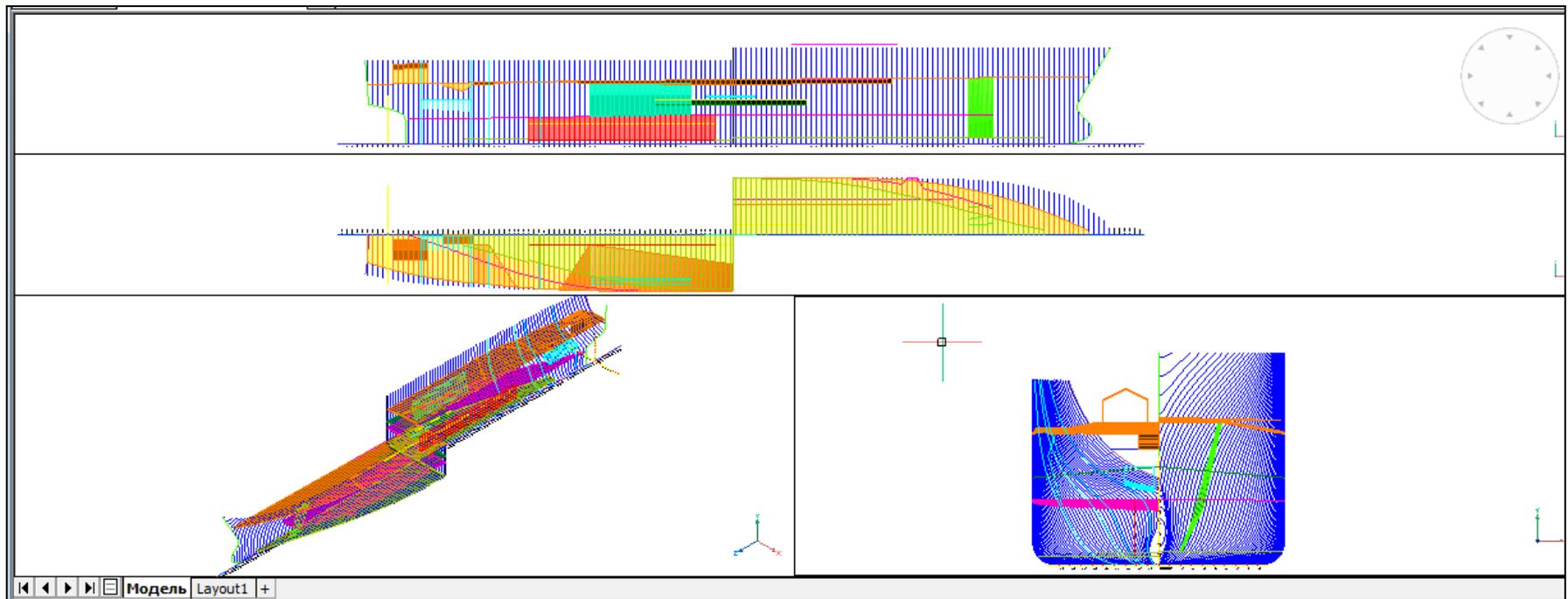
Grade (25)	<input type="text" value="PCB"/>	Scrap name (12)	<input type="text" value="01000016_3"/>
Thickness (5.1)	<input type="text" value="10"/>	Scrap No. (12)	<input type="text"/>
XN (8.2)	<input type="text" value="2175"/>	Scrap DWG (3)	<input type="text"/>
YN (8.2)	<input type="text" value="0"/>	Scrap ID (6)	<input type="text" value="79"/>
Gab. X (7.1)	<input type="text" value="1600"/>	Date (8)	<input type="text" value="16.06.21"/>
Gab. Y (7.1)	<input type="text" value="3825"/>	Work No. (6)	<input type="text" value="30336"/>
Profile (10)	<input type="text"/>		

01000016_3 (ID=79).

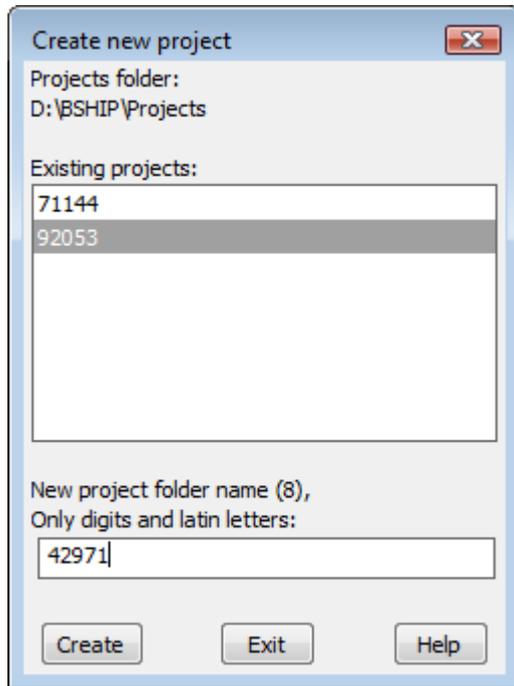
HelpAdd newDeleteReplaceExit

Model & Structure Modules

- Spacing tables
- Preparation of geometrical model, building decks and platforms
- Loftbook, shell expansion



New Model (Folder & General Data)



Dialog box titled "Create new project" with a close button (X) in the top right corner.

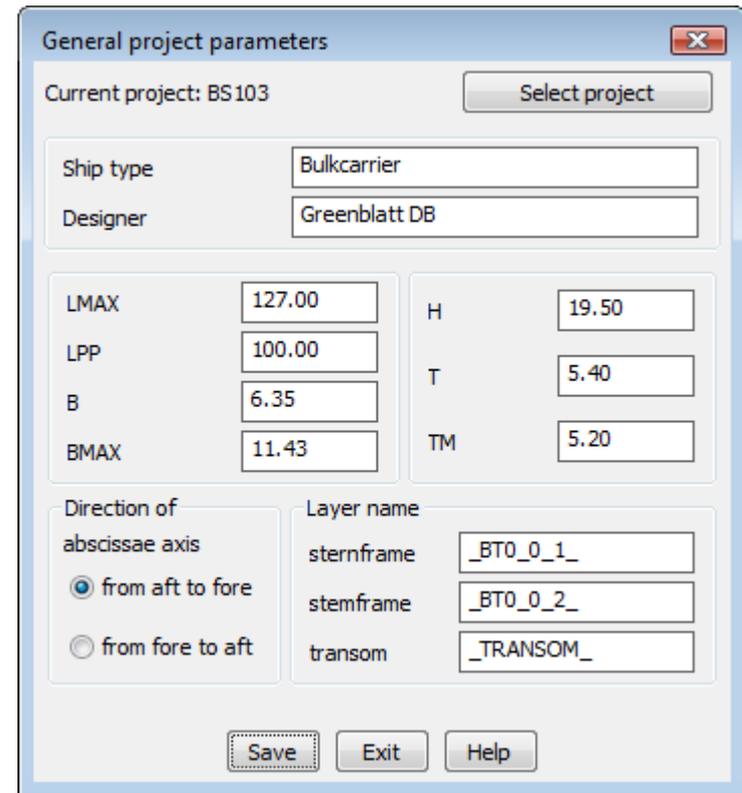
Projects folder:
D:\BSHIP\Projects

Existing projects:

71144
92053

New project folder name (8),
Only digits and latin letters:
42971

Buttons: Create, Exit, Help



Dialog box titled "General project parameters" with a close button (X) in the top right corner.

Current project: BS103 Select project

Ship type: Bulkcarrier

Designer: Greenblatt DB

LMAX	127.00	H	19.50
LPP	100.00	T	5.40
B	6.35	TM	5.20
BMAX	11.43		

Direction of abscissae axis

- from aft to fore
- from fore to aft

Layer name

sternframe	_BT0_0_1_
stemframe	_BT0_0_2_
transom	_TRANSOM_

Buttons: Save, Exit, Help

Spacing Tables

Values of distances between frames, buttocks, waterlines

Spacing Tables

Current project <EN103> Choose project

Frames Waterlines Buttocks Design sections

No. of groups: 2 Start frame abscissa, mm -1480.0

Group to edit

no. of group 1 N beg. (n) -15 spacing, mm 450.0

N end (n+1) 30 Apply to list Remove

Get from table

line numbers and additions

coordinates, mm

X 0

N

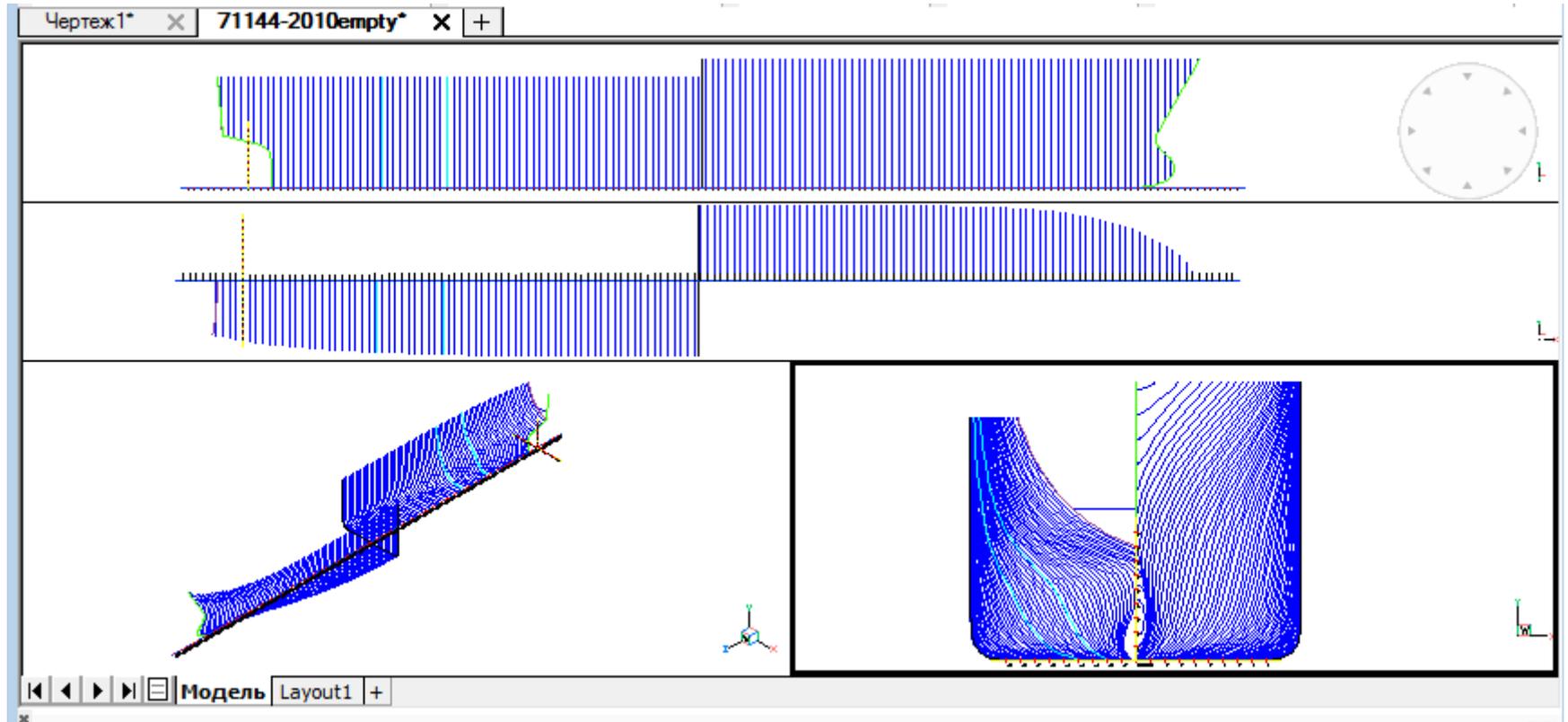
\$

Run

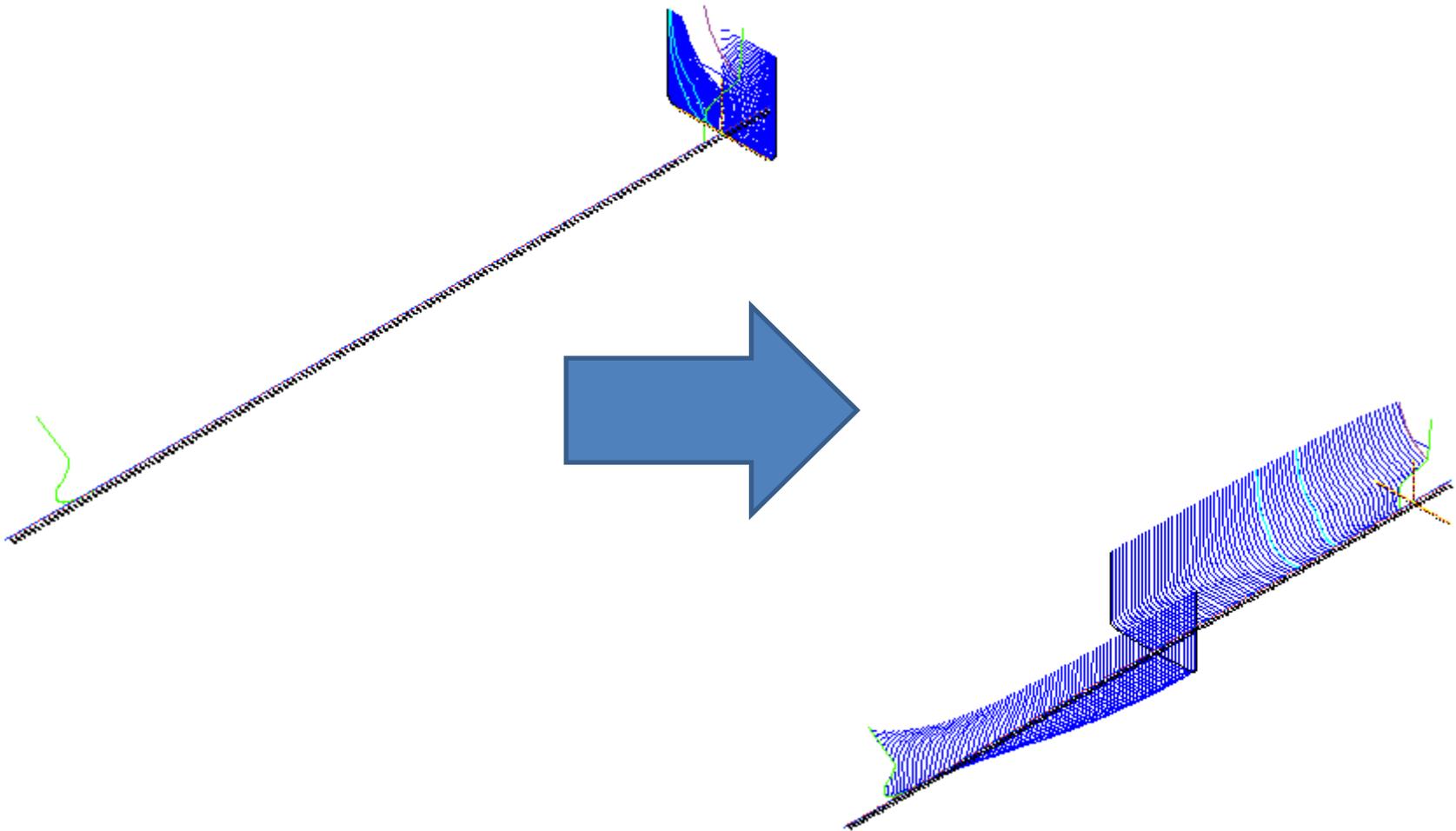
Group (n)	N beg. (n)	X, mm	Spacing	N end (n+1)	X, mm
1	-15	-1480.0	450.0	30	18770.0
2	30	18770.0	335.0	70	32170.0

Save Cancel Help

Views & Viewports Creation



Model Lines Adaptation



Naming Lines

Naming model lines, pr.71144

LAYER NAME TO BE FORMED:
_UD23\$100_0_0_

Type	UD
Number	23
Addition	100
Partition	0
Subpartition	0

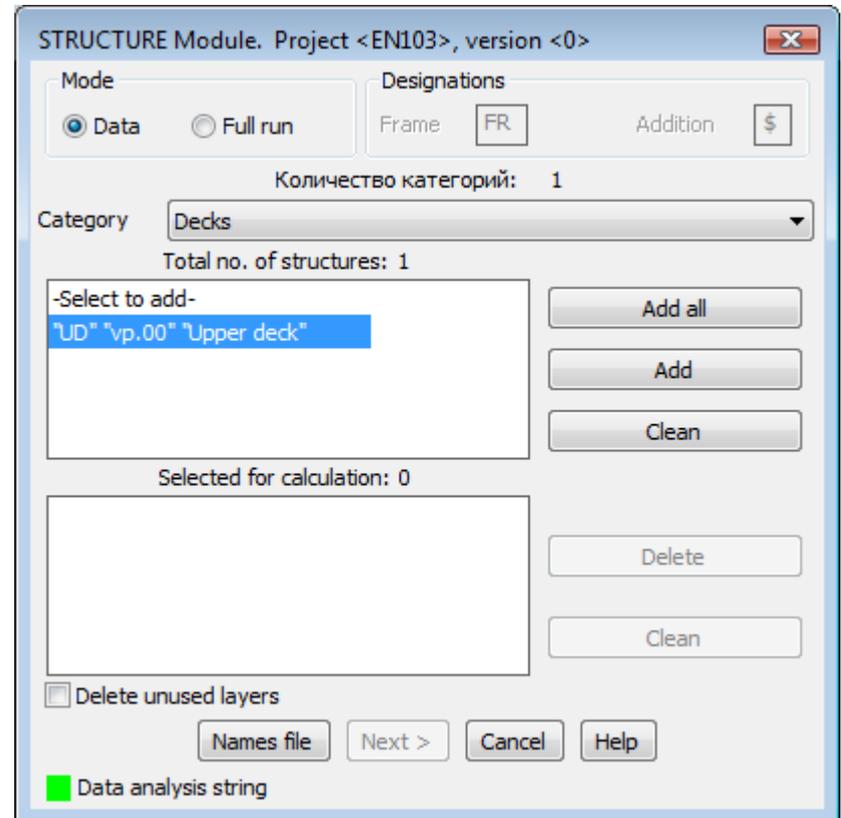
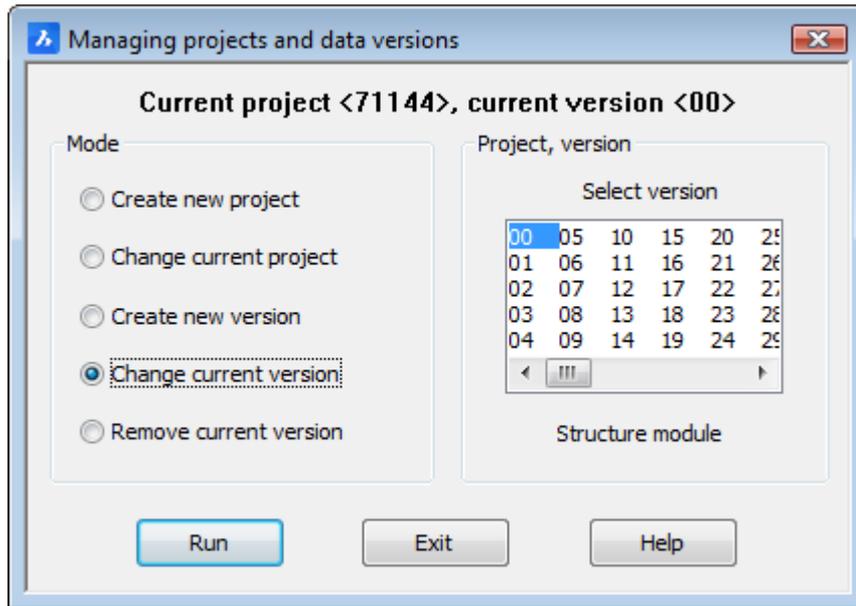
1	2	3
BT	BEAM	SL
WL	SLG	
UD	SST	
BOTTOM	VKEEL	
MB	MTB	

Add to list 3

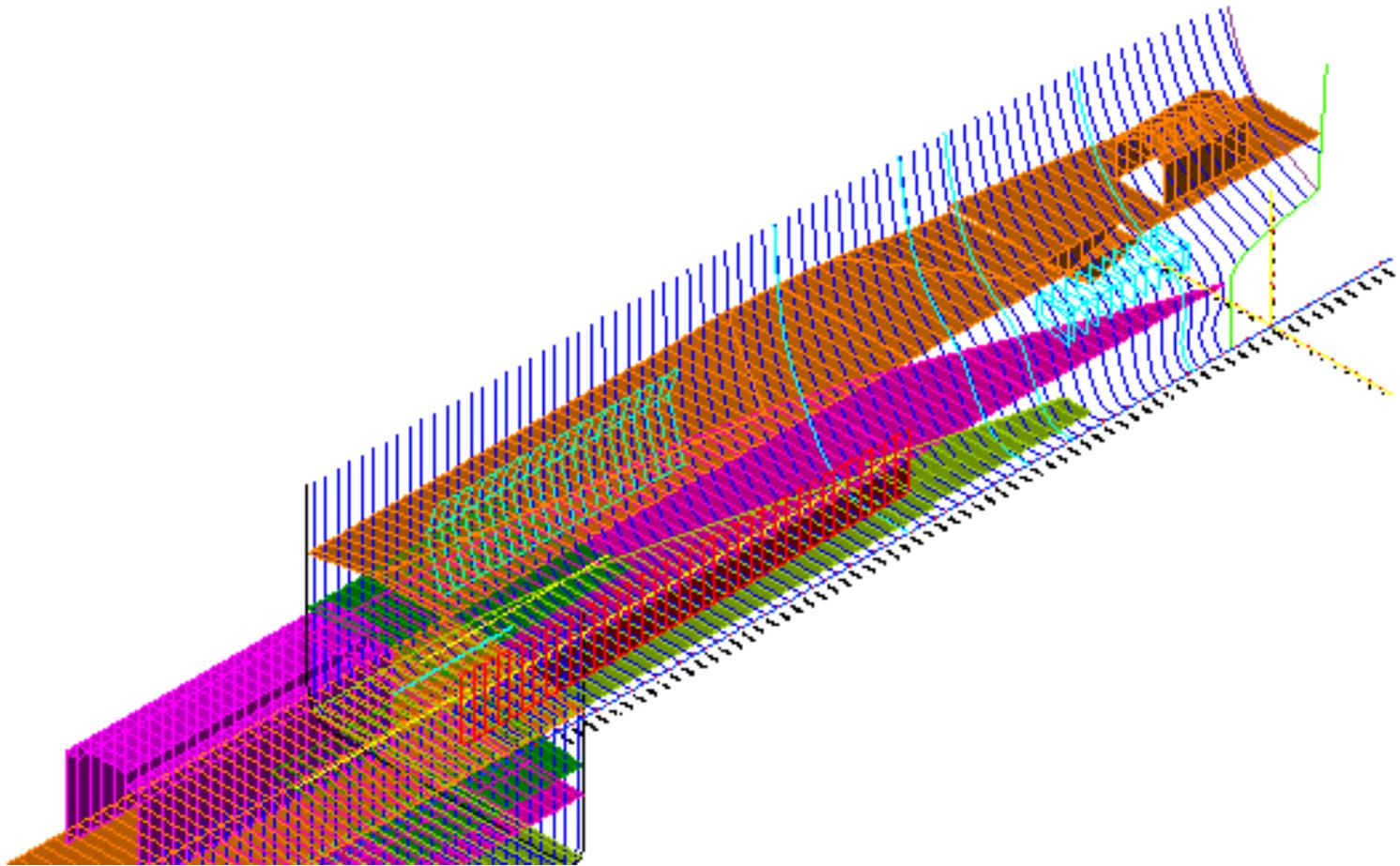
Remove from list 3

Accept Cancel Help

Structure Module



Building Decks & Platforms Surfaces in Model

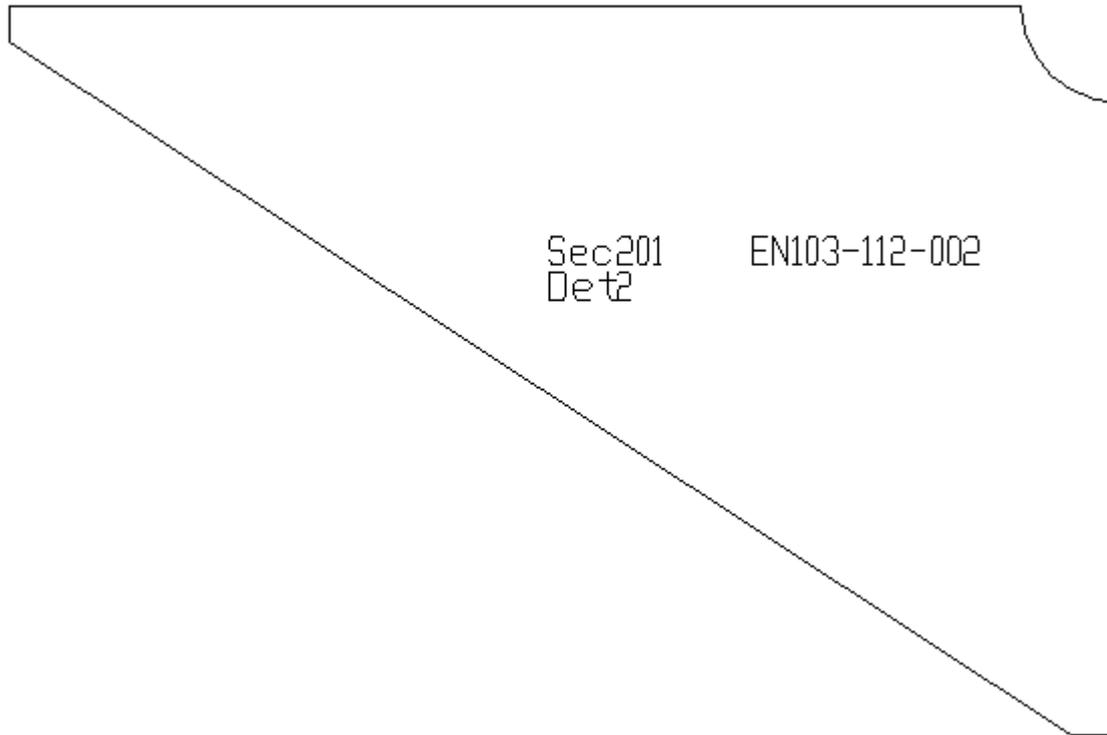


Part Module.

Creation of Parts

- Creation of part contours in accordance with a specific structure of part drawing
- Adding inscriptions, allowances, chamfers
- Holes and notches insertion
- Generation of TNC/FPD documents (technological and norming document with part sketch) using the form approved by the shipyard

Part Contours. Tools for Outer Contour



Holes, Notches

The image displays a CAD software interface with two overlapping dialog boxes. The background dialog, titled "Inner holes", lists various hole types (V2 to V9) with their respective parameters. The foreground dialog, titled "Tabular hole V5", provides detailed configuration options for a specific hole type. It includes a list of hole types, a comment field, a "Slide" area with a diagram of a trapezoidal hole, and a "Parameters of selected size" section with input fields for dimensions N, A, B, H, and R. At the bottom, there are checkboxes for "Move insertion point, mm" and "Rotate hole", along with their respective values.

Inner holes

Select hole:

- V2
- V3
- V4 | R1=R2=R3
- V5
- V6 | ----
- V7 | 100607
- V8 | 100701,110402
- V9 | 100702,110403

Comment: 100701,110402
Selected:

Cancel

Tabular hole V5

Additional info

Comment to hole, other designations (no spaces)

104002

Save

Slide

Size: V5-500-300

Total sizes: 5

File

Parameters of selected size

N: V5-500-300

A: 500

B: 400

H: 200

R: 50

Add size

Remove size

Mirror

Mirror hole after insertion

Move insertion point, mm

DX = 20.0

DY = 50.0

Rotate hole

Angle, deg. 45.0

Cancel

Insert

Standard Parts

Knee ✕

Dimensions:

Horizontal

Upper

Lower

Vertical

Right

Left

Contour type

Rect angle

By lines

Gabarits

Length A:

Dist A:

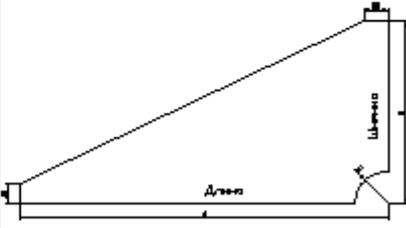
Width B:

Dist B:

Angle cut

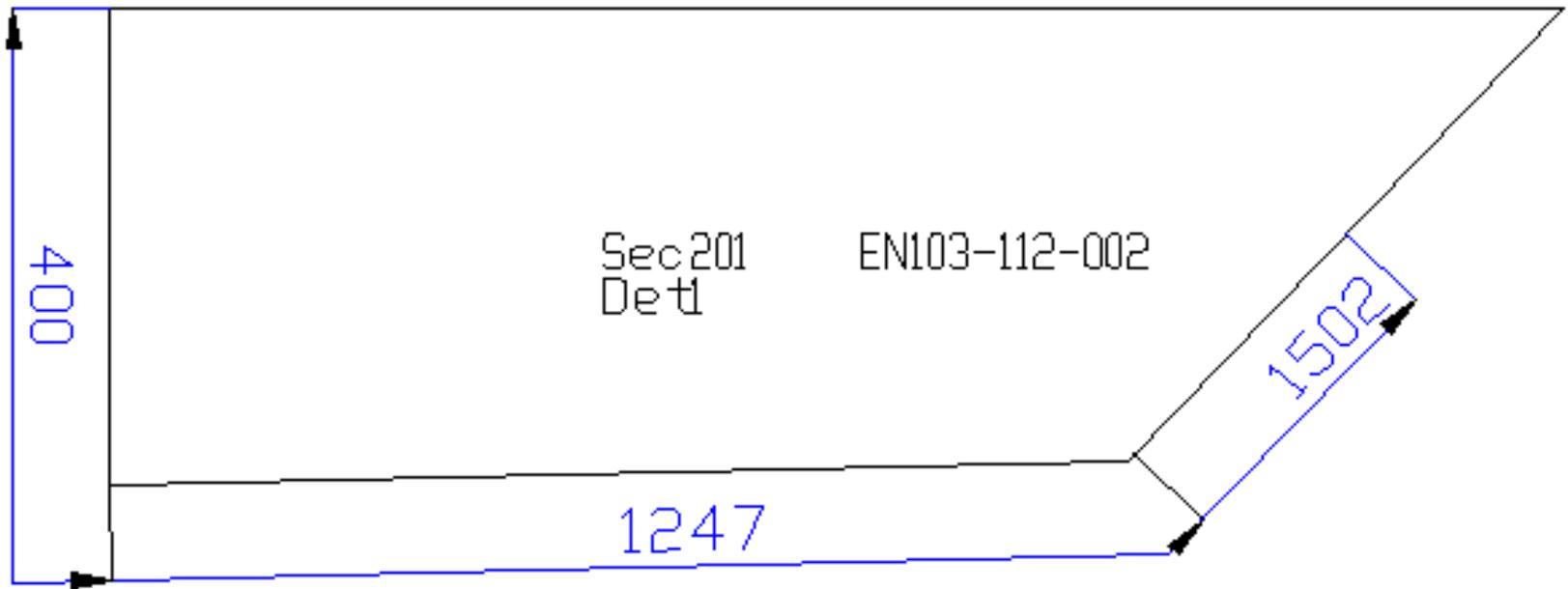
Straight Circular

Value/Radius:

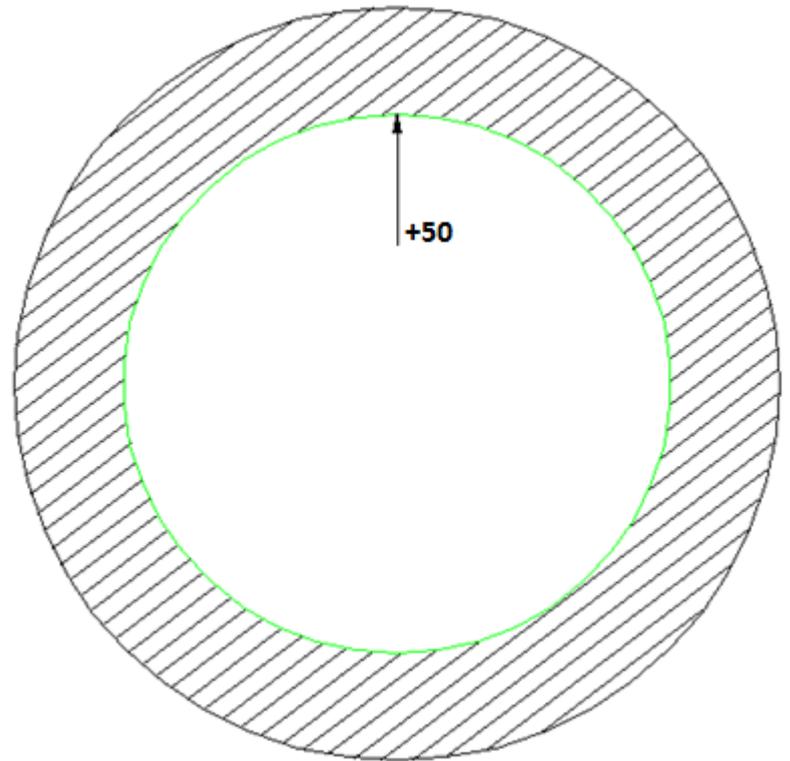
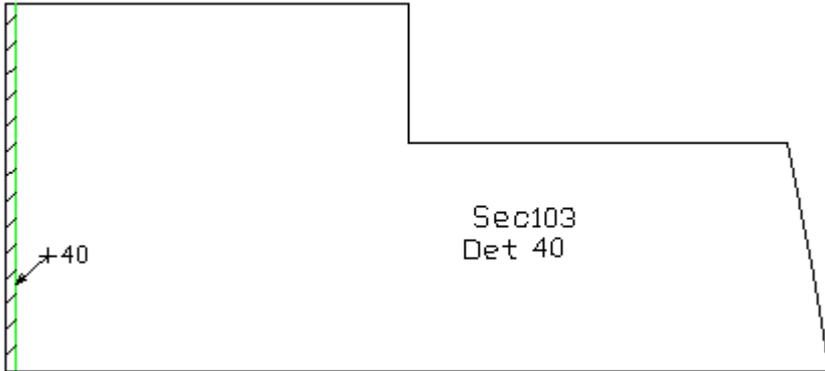


The diagram shows a right-angled triangle representing a knee joint. The horizontal base is labeled 'A', the vertical height is labeled 'B', and the hypotenuse is labeled 'C'. A small circular arc is shown at the bottom right corner, indicating a fillet or chamfer. The diagram is positioned below the 'Angle cut' settings, which are set to 'Circular' with a 'Value/Radius' of 40.

Specific Dimensioning



Allowance



Inscriptions

Technological texts

Inscription type
Orientation

List of texts
TOP
BOTTOM
CL
TO SIDE
AFT
FORE
PS
SS

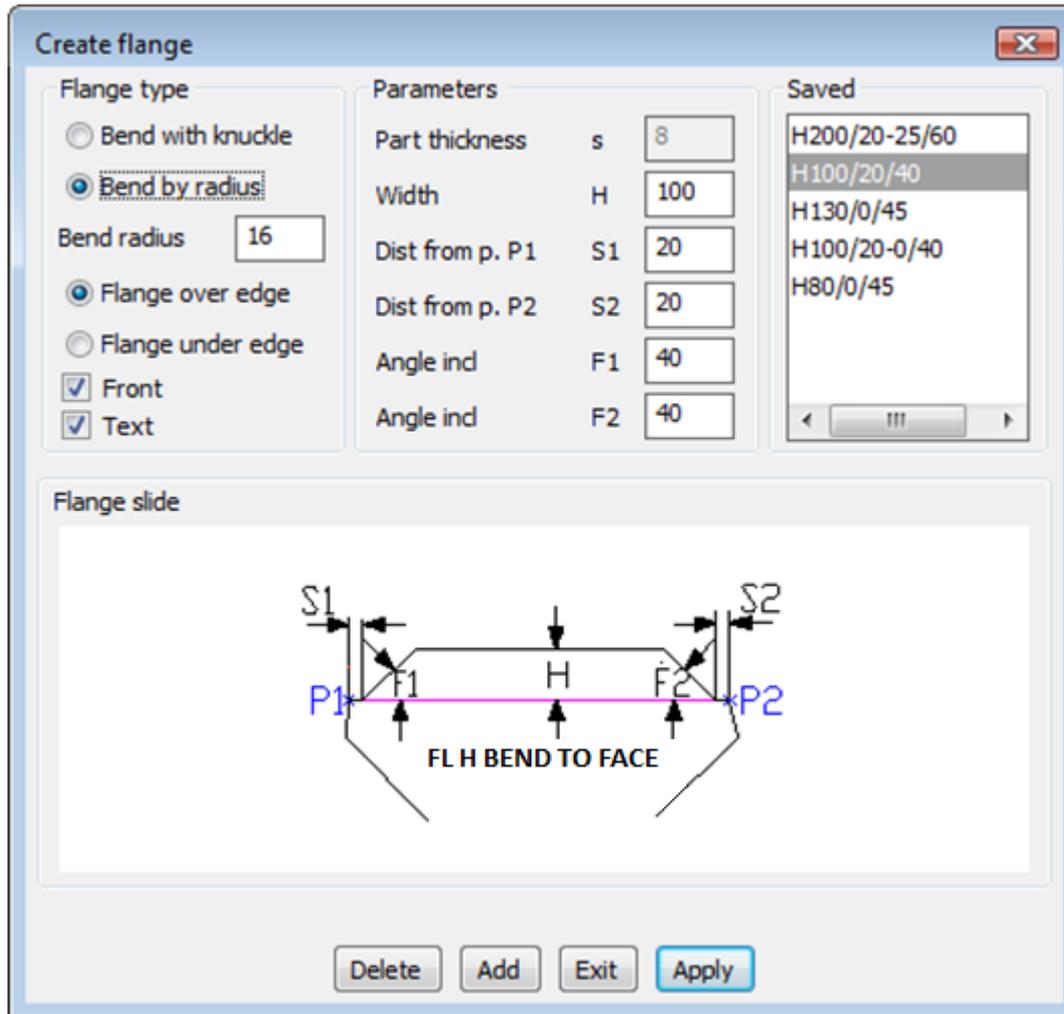
Text to add

Text height, mm
11

Underscore To check

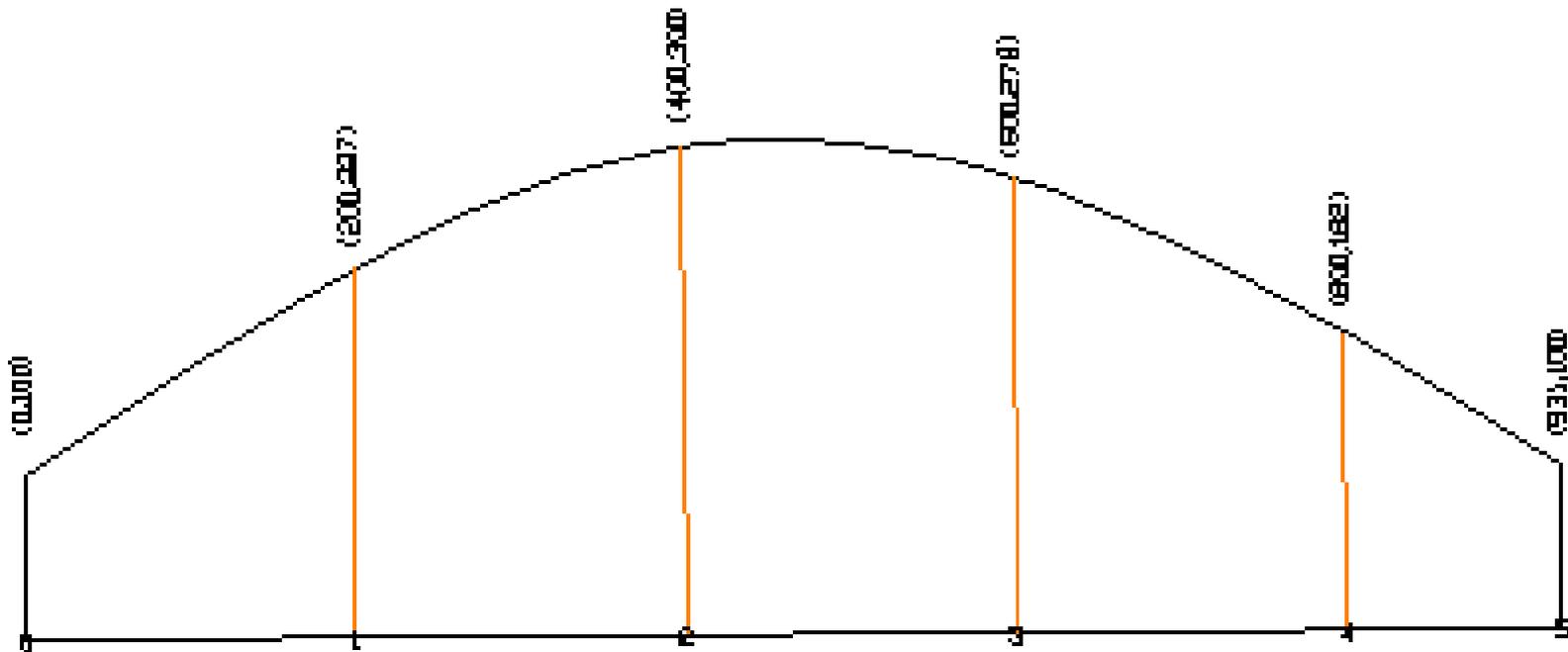
Add Delete Exit Apply

Bending, Flange

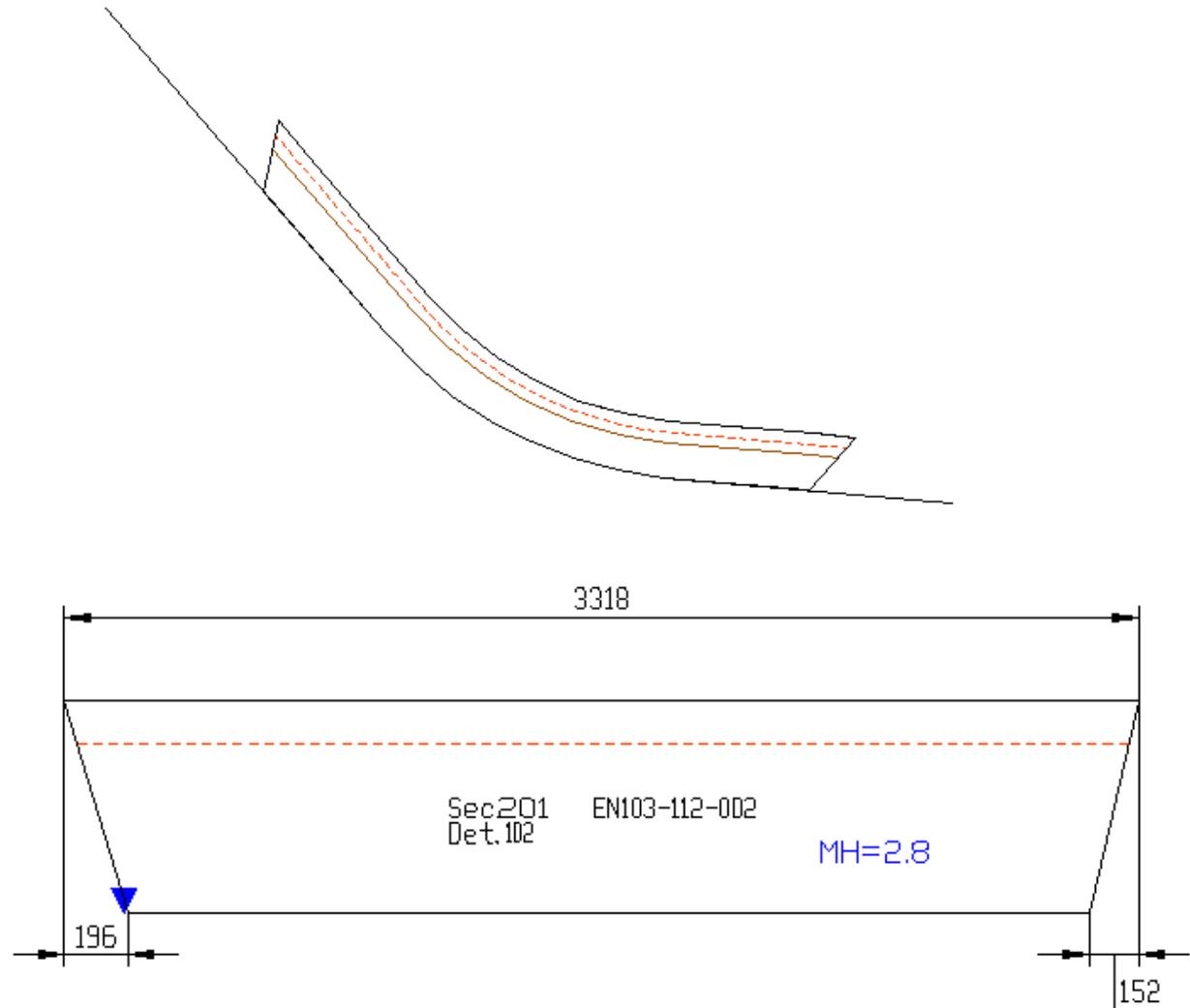


Bending.

Template for Controlling Form



Profile (Beam) Part Sketch



Editing Parts

Select part(s)

Current project <EN103> Alias name <Z> Portion < 1>

Draw: EN103-112-002 Sec - 201 User: Korolainen O. W.N. - 30056

View DWG

KCt	Pos	Name	Qty	Grade	Thck	Width	Length	Profile	Mass
*52	1	PART S10	1	PCD32	10.0	400	1200		31.09
*52	2	PART S16	3	PCD32	16.0	300	450		9.10
52	101	BEAM 14B	3	PCA32	9.0			14B	
52	102	PART	1	PCA32	12.0			24A	

Qty pos. - 4 . DWG files - 2 . In DB - 2 pos.

Mirror prototype

Nest. Map

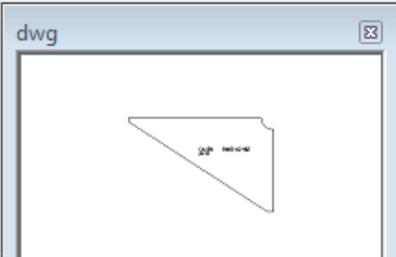
Del.geom Prot. DWG... Prot. POS Exit Apply Help

LIST OF POSITIONS TO VIEW, SAVE OR DELETE (2 pos.)

52	101	BEAM 14B		MISSING D:\BSHIP\SAMPLES\B
52	2	PART S16		

Clean all the list

dwg



Creating TNC/FPD with Part Sketches

Create (or print) FPD (THK) for part sketches

Current project <BS103> Alias name <test01> Portion < 1>

User: Bell Jimmy W.N. - 4823

Drawing: BS103-112-001 Cek - 103

Info on ready FPDs

Quant. entr. - 247 DWG files - 249 Quant. doc. - 2

Parameters for output ready documents

- To TNK folder of order
- To printer

Plot configuration file .pc3

Default Windows System Printer

Set part drawing parameters

- Part contour Contour line weight: 0.3
- No scaling texts
- Scale texts
- Text height: 2.5

Layout orientation

- Portrait
- Landscape

Numeration of FPD sheets and paper size

Paper sheet size: 297x210

FPD sheet No.:

Settings of FPD generation

- No FPD scaling
- Delete part label

Choose positions group for FPDs

- Use group
- From begin
- Continue
- Select...
- List

Part numbers: 0

Apply Exit Help

Export of Parts to Another Project

Select draws and parts for export

Current order: EN103_1

Select draw (specification)

- EN103-112-001
- EN103-112-002
- EN103-112.03-010

Export options

- DBF specification
- DWG geometry
- DWG FPD
- DBF technology

Mark parts of the selected draw

	*40	[PLATE s8]	1	PCB 8x1526x3375	256.22
	*41	[PLATE s8]	1	PCB 8x250x329	4.58
	*42	[PLATE s18]	1	PCB 18x709x709	55.76
	*43	[PLATE s18]	1	PCB 18x630x1695	146.85
	*44	[PLATE s8]	1	PCB 8x1279x2858	187.98
	*45	[PLATE s8]	1	PCB 8x1560x2859	259.28
	*46	[PLATE s8]	1	PCB 8x938x1757	77.48
	*47	[PLATE s8]	1	PCB 8x1215x1757	123.66
	*60	[BRACKET s9]	1	PCB 9x961x1380	92.88
v	*61	[BRACKET s9]	1	PCB 9x540x967	27.62
v	*62	[SHELF s10]	1	PCB 10x240x668	6.08
v	*63	[BRACKET s9]	1	PCB 9x543x537	18.46
v	*64	[PLANK s10]	1	PCB 10x100x438	3.44
v	*65	[BRACKET s9]	1	PCB 9x460x537	17.02
	*66	[PLANK s10]	1	PCB 10x100x430	3.38
v	*67	[BRACKET s9]	1	PCB 9x467x537	17.29
	*68	[PLANK s10]	1	PCB 10x100x430	3.38
	*69	[BRACKET s9]	1	PCB 9x474x537	17.55
	*70	[PLANK s10]	1	PCB 10x100x430	3.38
	*71	[BRACKET s9]	1	PCB 9x481x537	17.82
	*72	[PLANK s10]	1	PCB 10x100x430	3.38
	*73	[BRACKET s9]	1	PCB 9x488x537	18.08
	*74	[PLANK s10]	1	PCB 10x100x430	3.38

Positions in draw: 245

Mark all

Unmark all

Mark in the scope

from 120 up to 220

Unmark in the scope

from up to

To position

Export marked

Click on part line to switch mark (yes/no) to opposite one

Marked 47 positions

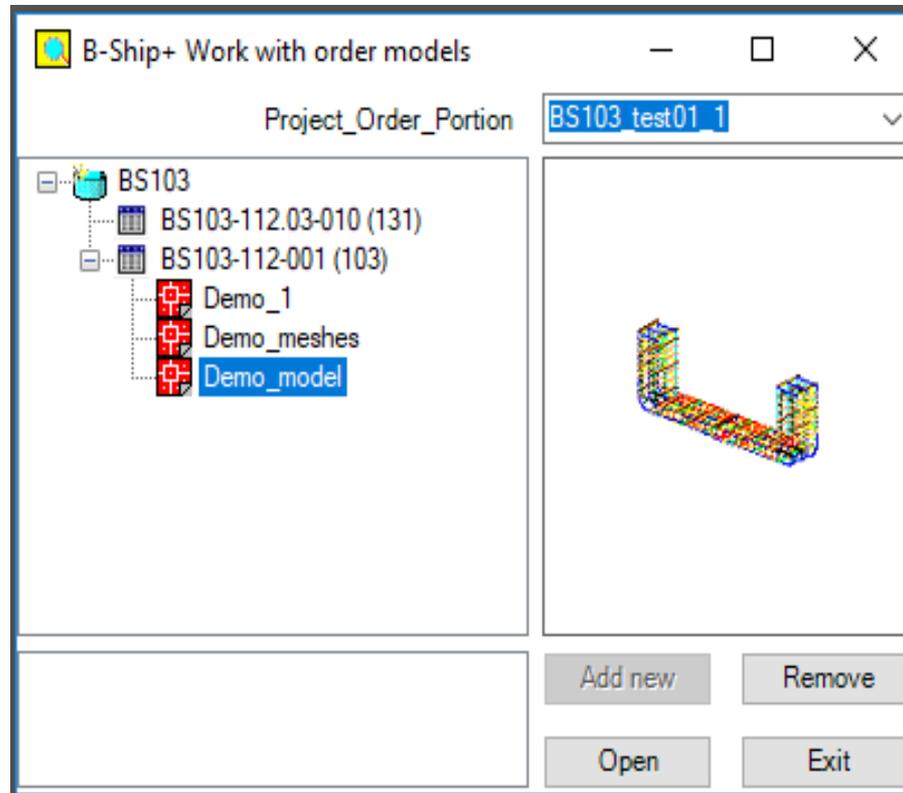
Exit Справка

The **Mdet** Module

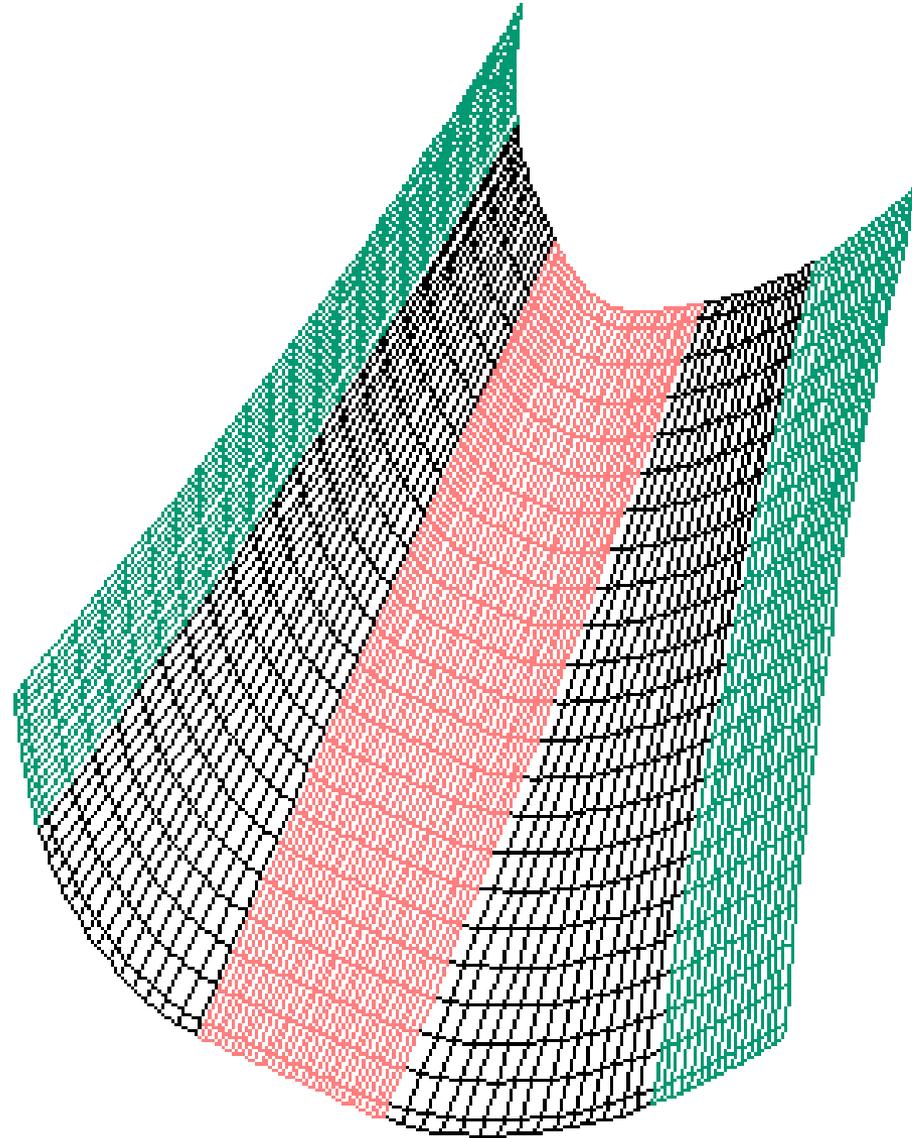
- Handling models (dwg files of ship hull block or section)
- Creation of parts geometry in 3D model
- Additional builds for plaz (loft) needs
- Calculation of bending data
- Shell sheets development
- Work with node tables and welding seams

Models in the Project

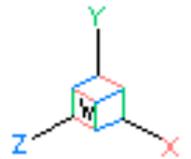
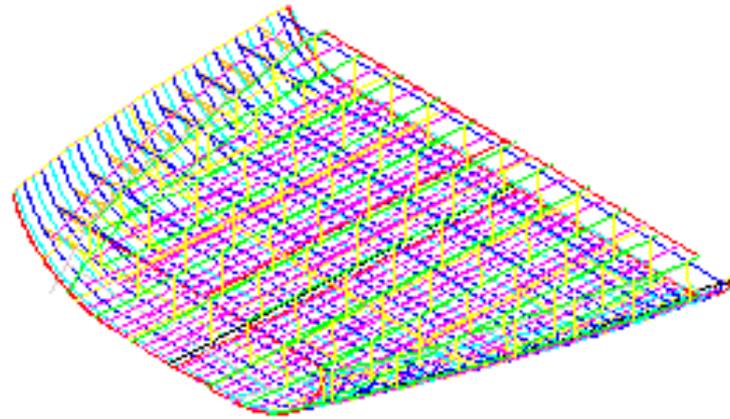
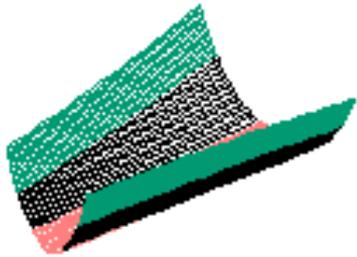
- Dwg models are being connected with a drawing document (specification)



Mesheres for Hull Shell Plates



Models on Screen



Creating Mesh Surfaces for Shell

B-Ship+ Project EN103

Project name - "Bulkcarrier"

Length, m

Breadth, m

Depth, m

Draught, m

"Axis of abscisses from aft to fore"

Surface name

Surface on a prototype (.fef)

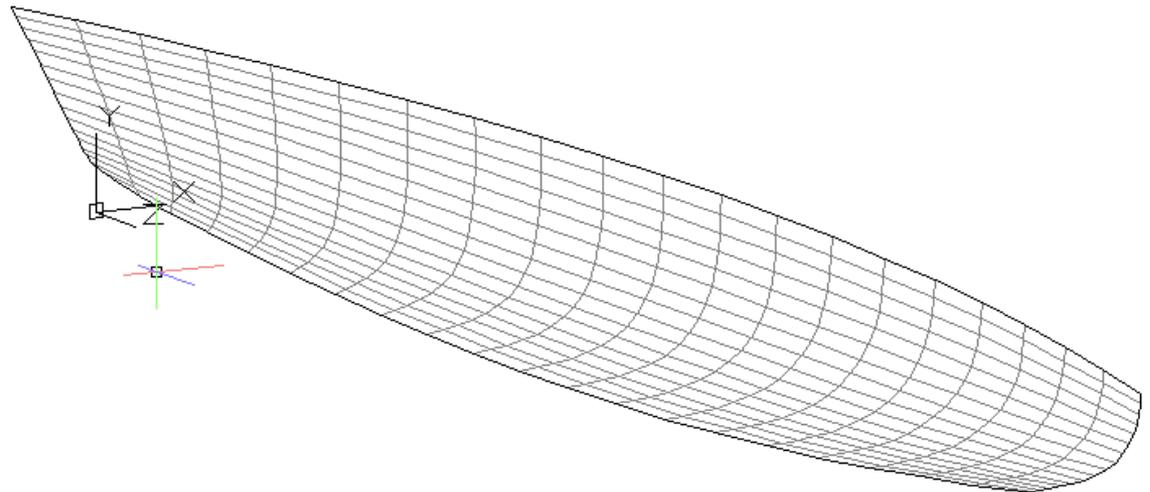
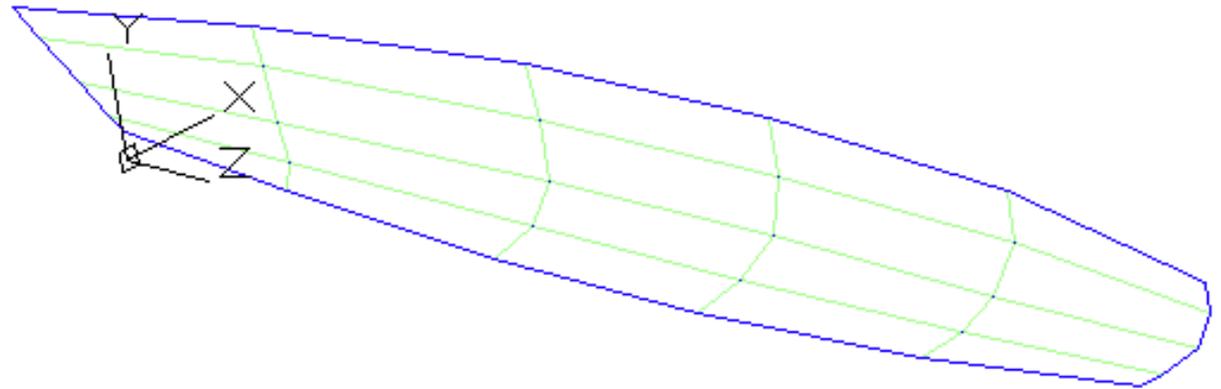
Surface instructions of points

Surface expression

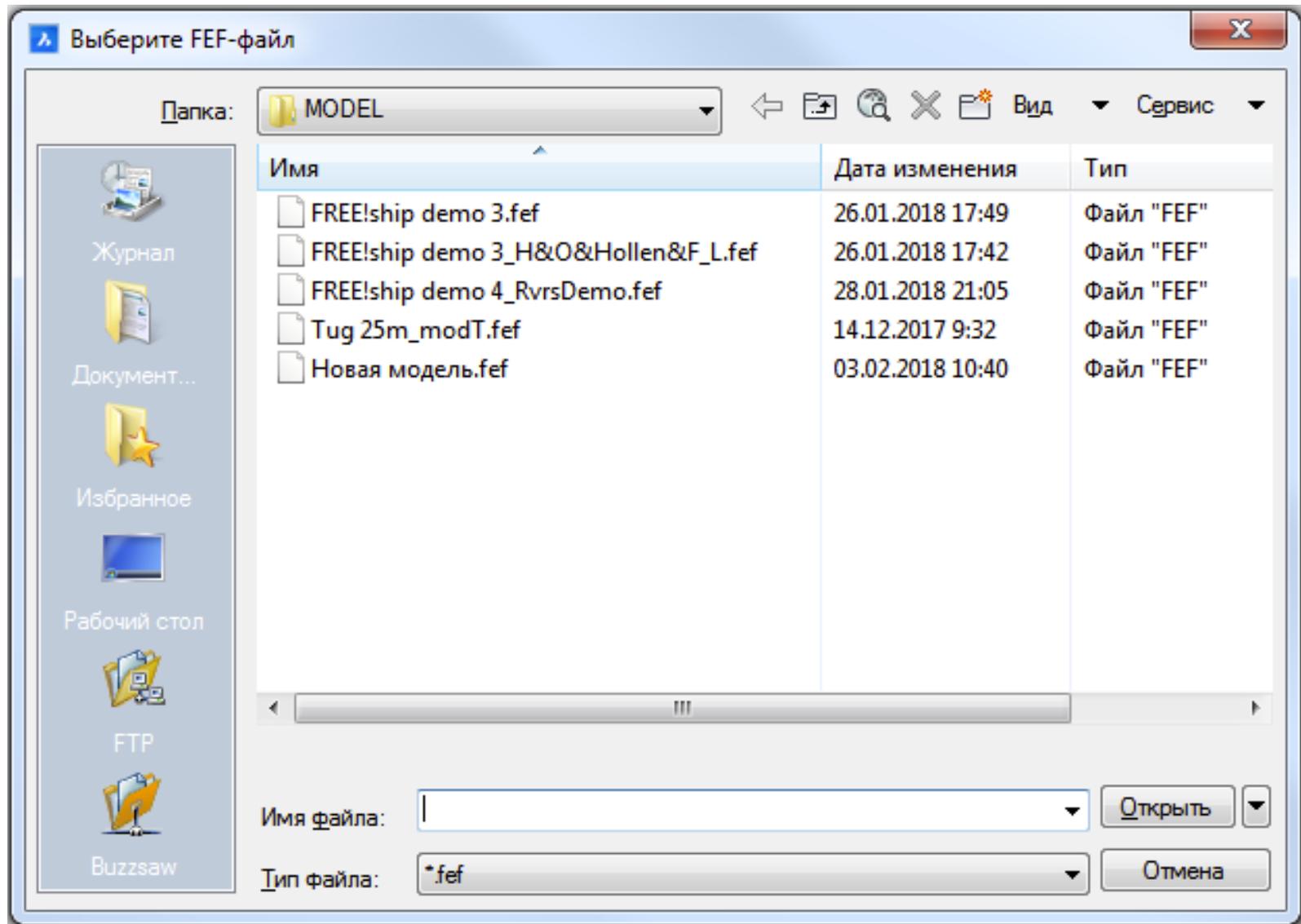
Surface by default

Quantity of points on length

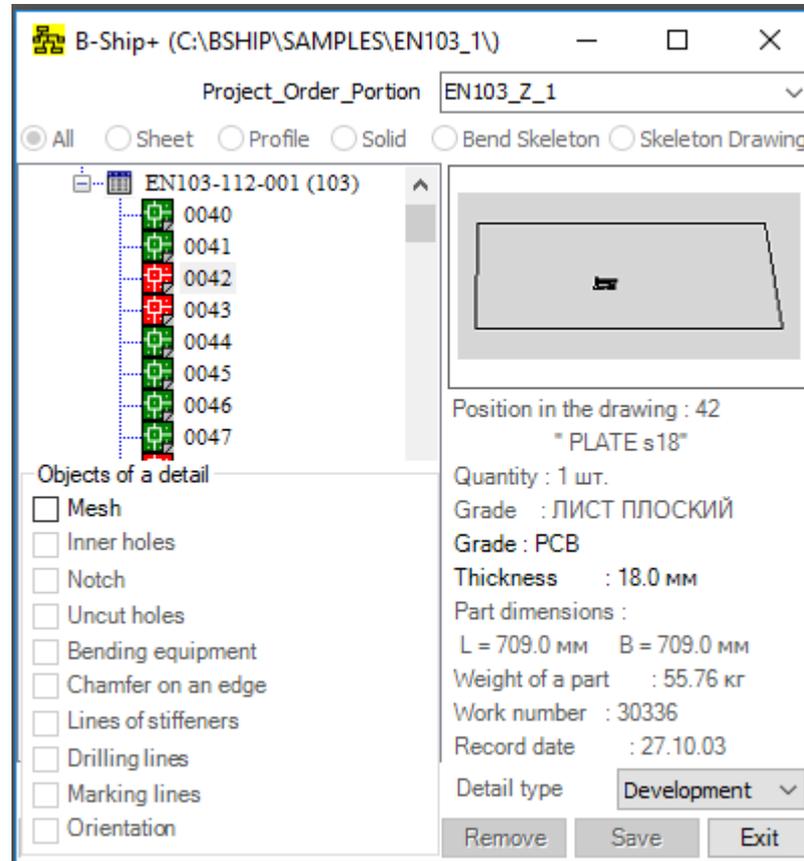
Quantity of points on height



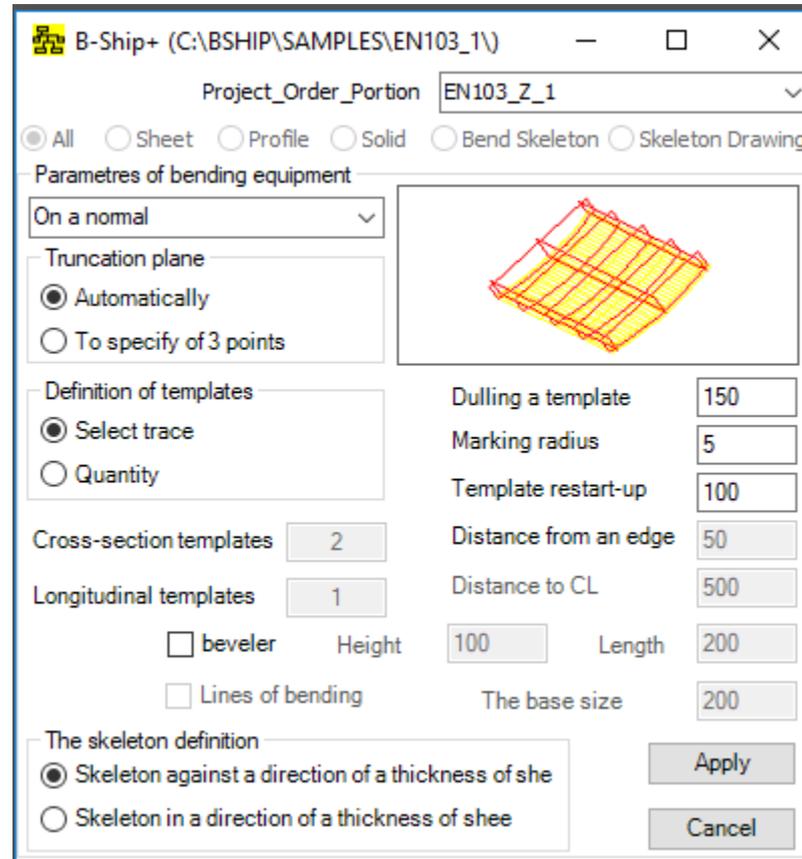
Import of Surfaces from FreeSHIP



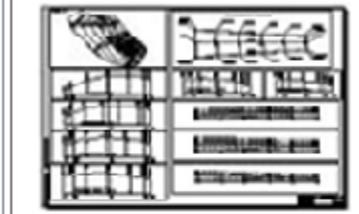
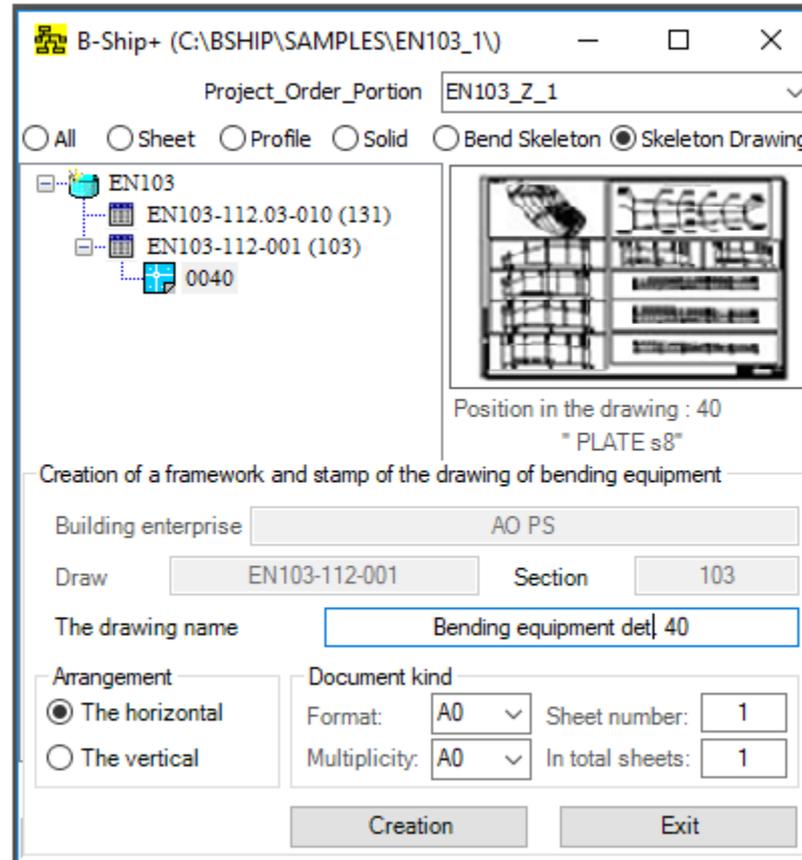
Shell Plate Development



Bending Tools



Bending Skeleton Drawing



Position in the drawing : 40
" PLATE s8"

Creation of a framework and stamp of the drawing of bending equipment

Building enterprise: AO PS

Draw: EN103-112-001 Section: 103

The drawing name: Bending equipment det| 40

Arrangement

The horizontal

The vertical

Document kind

Format: A0

Sheet number: 1

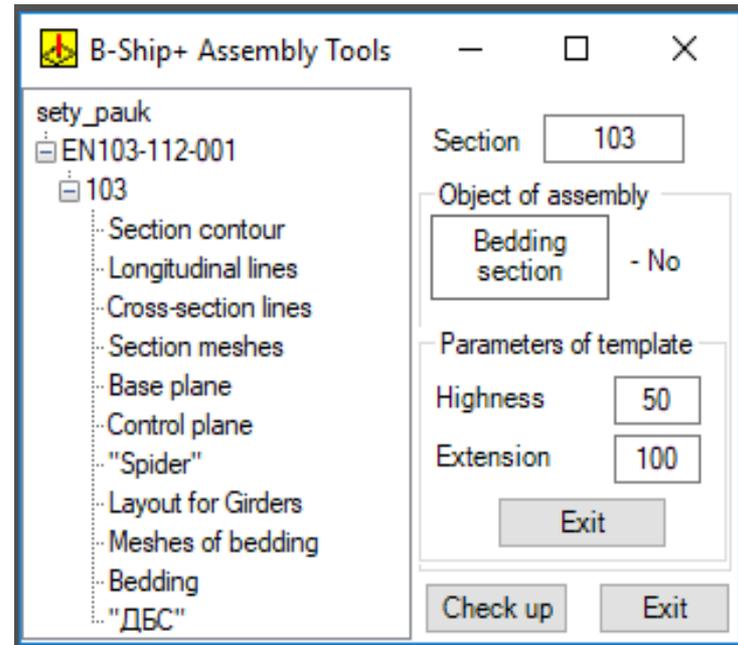
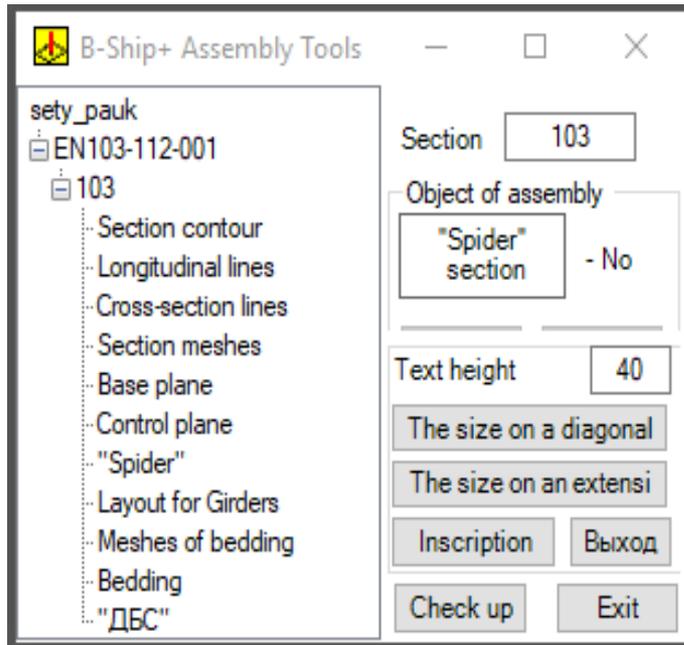
Multiplicity: A0

In total sheets: 1

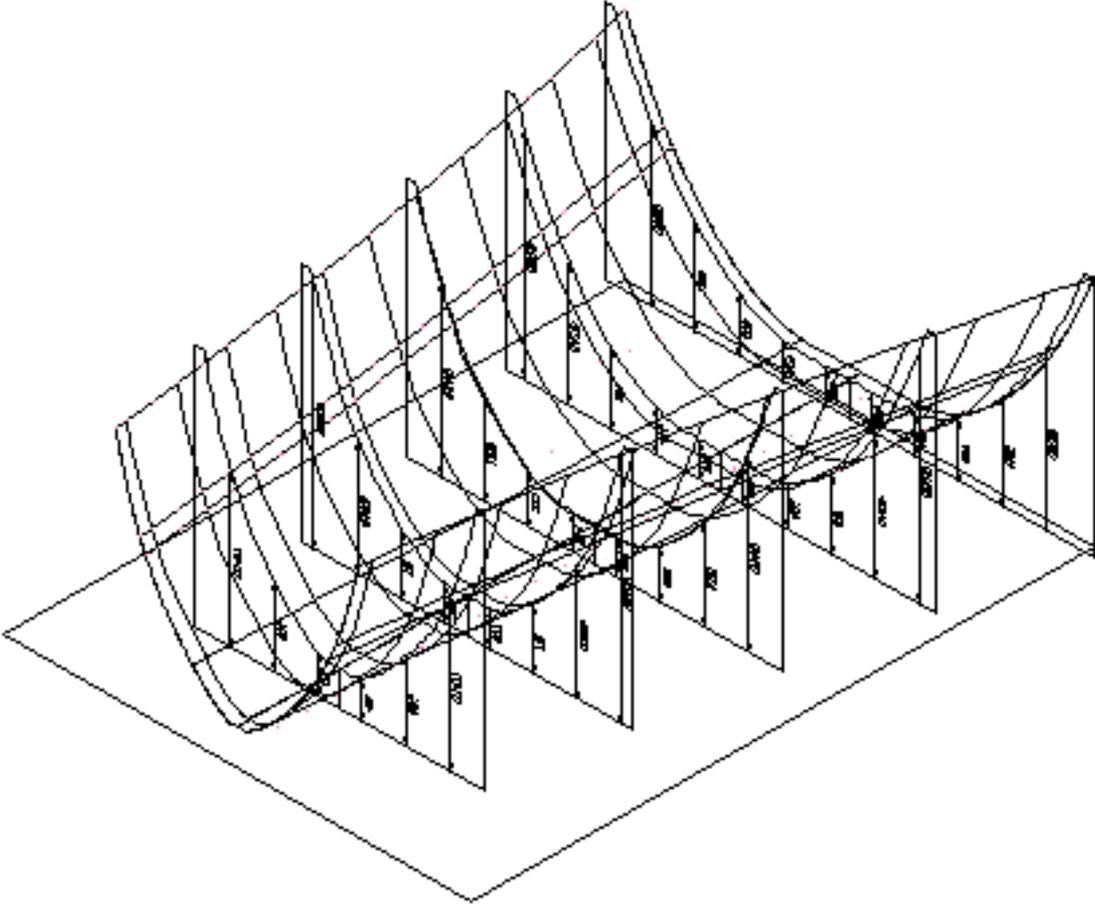
Creation

Exit

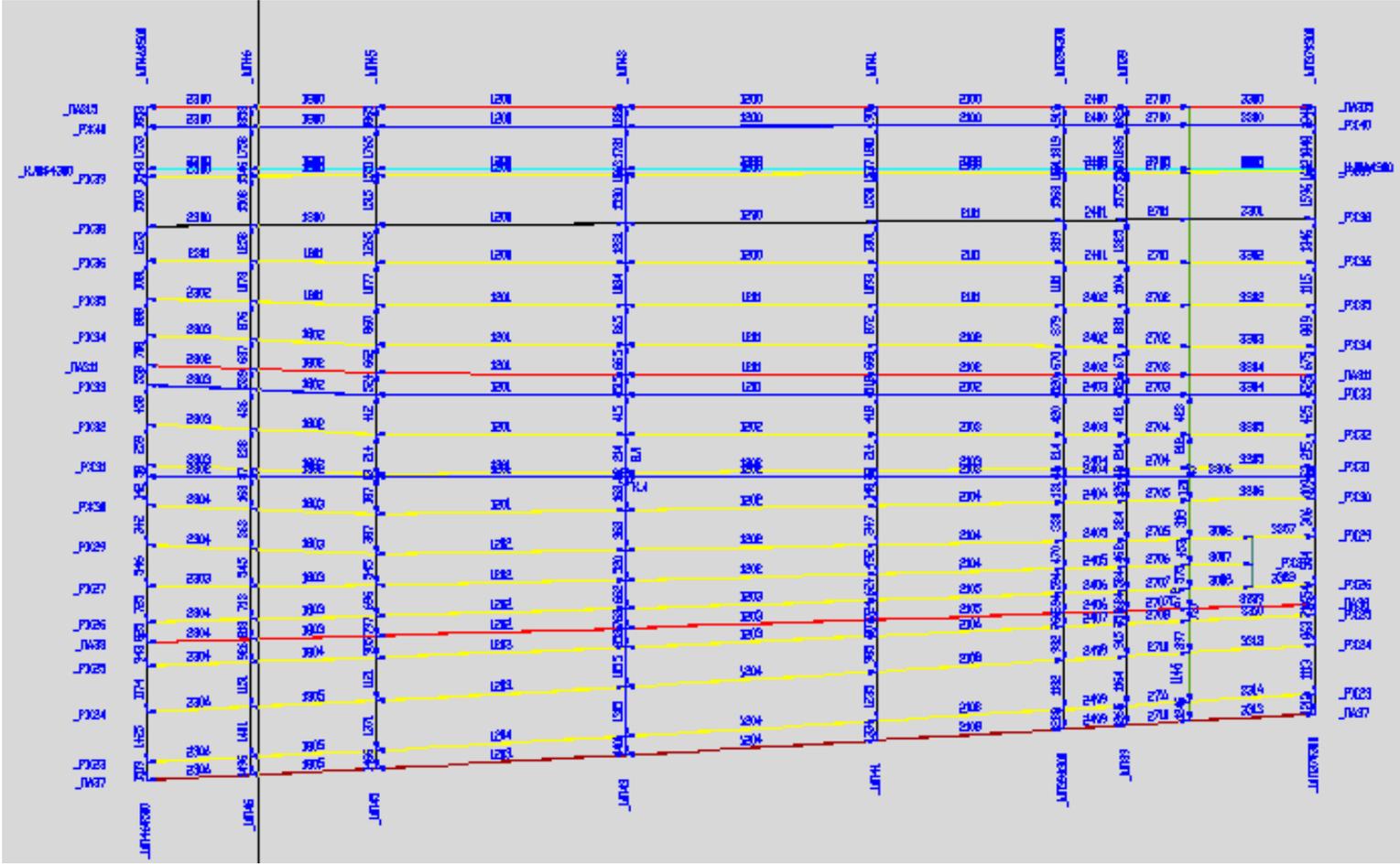
Assembly Tools



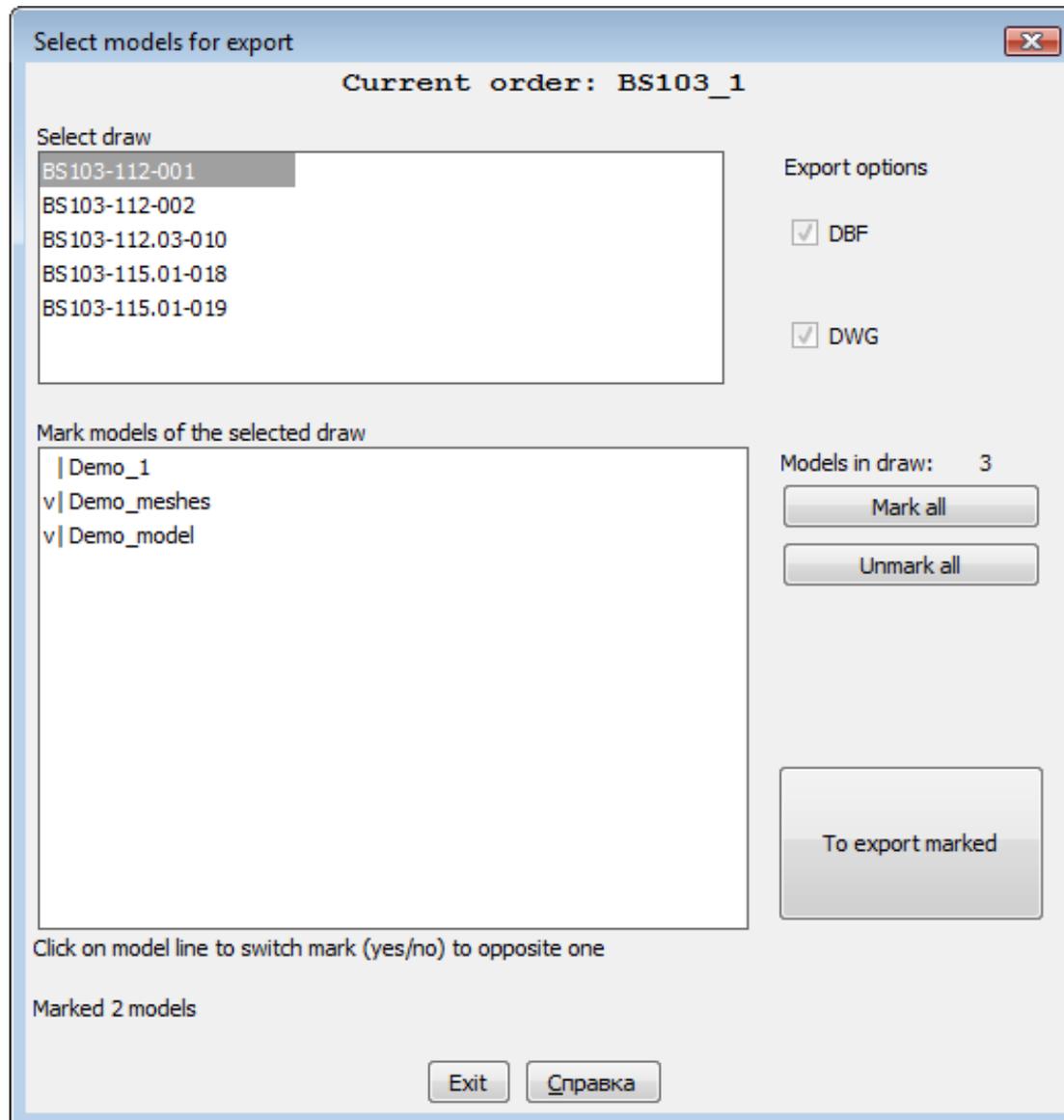
Bending Templates Positioning Data



Layout for Girders (Longitudinal and Crossing)



Export of Models to Another Project



Nesting Module.

Nesting Maps, Scraps Handling

- Groups of joint nesting
- Automatic nesting of sheets
- Interactive nesting of sheets
- Defining cut route, output of CNC programs
- Forming TNC/FPD for nesting maps
- Nesting spreadsheets (tables)
- Nesting of scraps and getting CNC programs

Joint Nesting Groups (JNG)

Create joint nesting group (JNG) X

Current order: BS103_1

Total JNG: # for new JNG:

Draws

- BS103-112.03-010
- BS103-115.01-018
- BS103-115.01-019

End of draws selection

Selected:

- BS103-112-002
- BS103-112-001

Starting nesting map name (4+4):

 +

Material grades

- PCB
- PCD32

Selected:

Grade PCB

Between parts (0.0-40.0 mm):

From edges (0.0-40.0 mm):

Postprocessor

Format ESSI

Unused thicknesses

- 6 (pos:2 pc:4)
- 7 (pos:11 pc:14)
- 9 (pos:3 pc:3)
- 10 (pos:2 pc:2)
- 12 (pos:72 pc:128)
- 16 (pos:2 pc:2)

Selected:

Thickness 7

Cutting kerf halfwidth (0.0-2.0)

Cutting type

Pierce outer (0.0-20.0)

Pierce inner (0.0-20.0)

Selected thickness: 7. Check other data and go to selection of sheets, scraps

JNG Dispatcher

Dispatcher of joint nesting groups X

Current order: BS103_1 **Launch:** 1

Joint nesting groups	Parameters of selected JNG
4 PCB s8 (5) 00800007	JNG # <input type="text" value="4"/>
5 PCB s7 (3) 00700005	Number of parts <input type="text" value="5"/>
	Summary area <input type="text" value="6.5"/>
	Material grade <input type="text" value="PCB"/>
	Thickness <input type="text" value="8"/>
	Cutting type <input type="text" value="52"/>
	Material code <input type="text" value="11111111"/>
	Nmap name <input type="text" value="00800007"/>
	Shelf DWG <input type="text"/>
	Data <input type="text" value="23.10.19"/>
	Personal # <input type="text" value="51494"/>

Navigation: < ||| >

Buttons:

Delete shelf	Parts included	Sheets, scraps	Nmap name	Help
New JNG	Delete JNG	Nesting	Renesting	Exit

Selecting Sheets (Scraps) for JNG

Select sheets, scraps for JNG

JNG: 6 Material grade: PCB Thickness: 7
Scraps table: D:\BSHIP\ptxod.dbf

Sheets	Scraps
	scr BS103_1 00700001_1 PCB 7x311x661 64 "DWG" [0
	scr BS103_1 00700002_1 PCB 7x457x2033 121 "DWG" [0
	scr BS103_1 00700002_2 PCB 7x330x772 120 "DWG" [0

Selected for JNG

scr BS103_1 00700002_1 PCB 7x457x2033 121 "DWG" [0

Parameters

Width (5)	457
Length (5)	2033
Number (3)	1
DWG (3)	DWG

Up Delete

Down Replace

View scrap DWG

Help

Cancel

Choose parts for JNG

Selecting Parts for JNG

Select parts for new JNG ✕

Current order: BS103_1

JNG: 6 Material grade: PCB Thickness: 7

To nest on sheets, scraps:

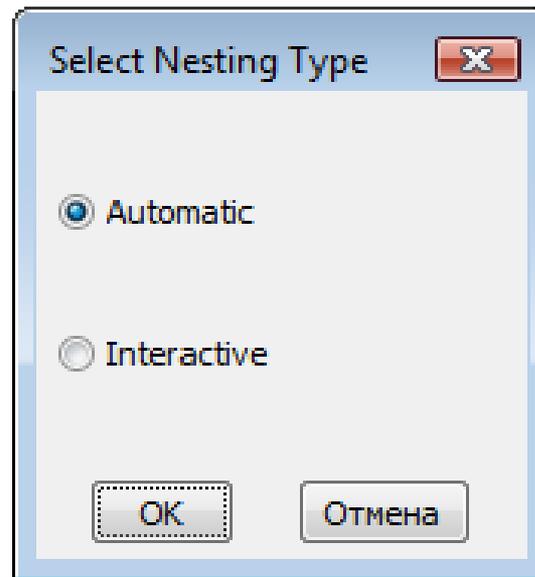
`scr BS103_1 00700002_1 PCB 7x457x2033 121 DV`

Parts and multiplicities		Included to JNG
1030240 (1000x4550) 1	>>	1030263 (968x1345) 1
1030247 (1006x4442) 1	n >	1030404 (345x302) 2
1030436 (480x522) 2	All >	1030446 (498x574) 2
1030554 (275x453) 1	<<	1030460 (227x461) 1
1030555 (175x436) 1	< n	1034006 (150x150) 1
	< All	1034007 (150x200) 1

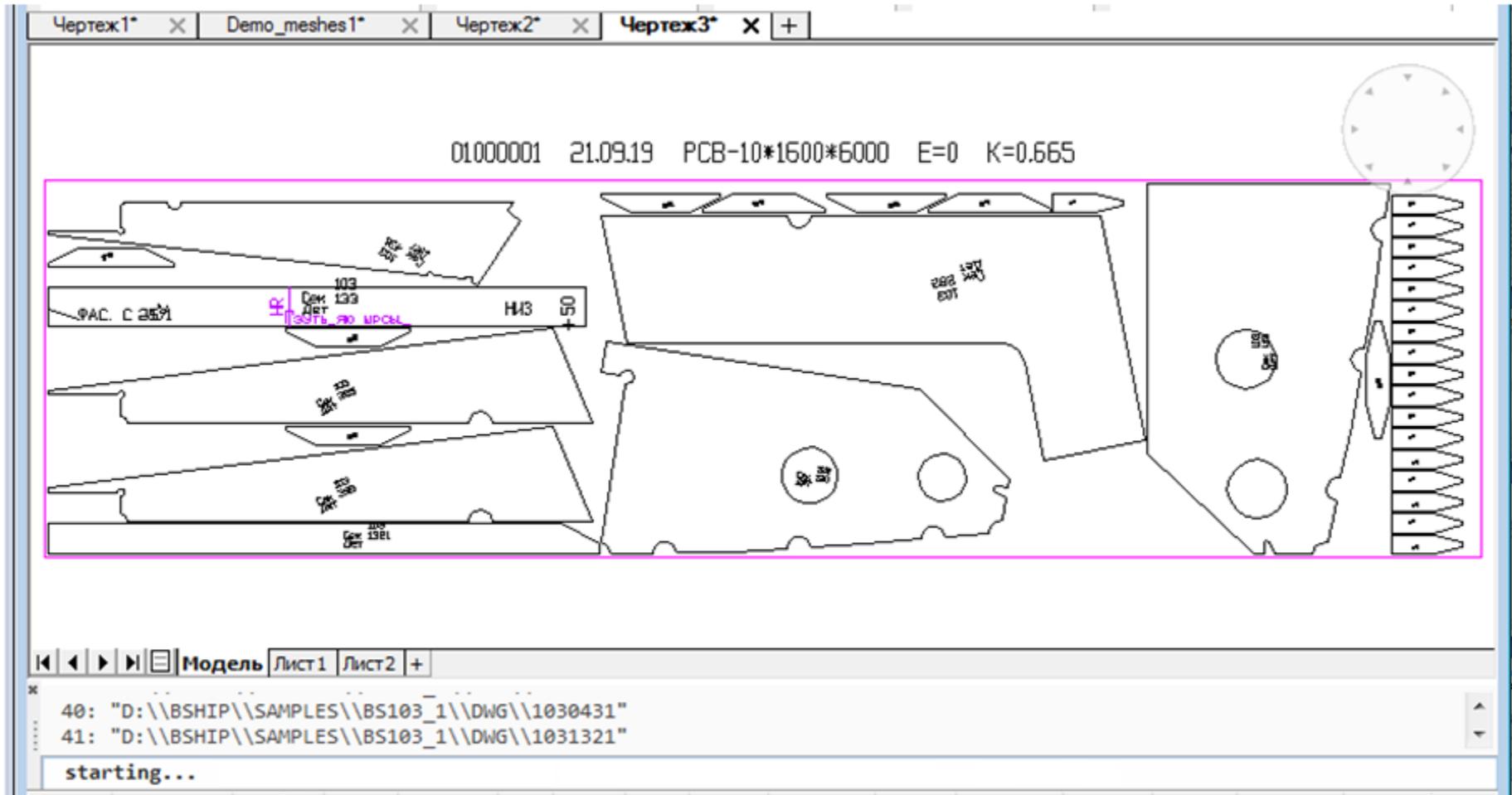
Free 5 positions. Included to JNG 6 positions

JNG and exit JNG and nesting Cancel Help

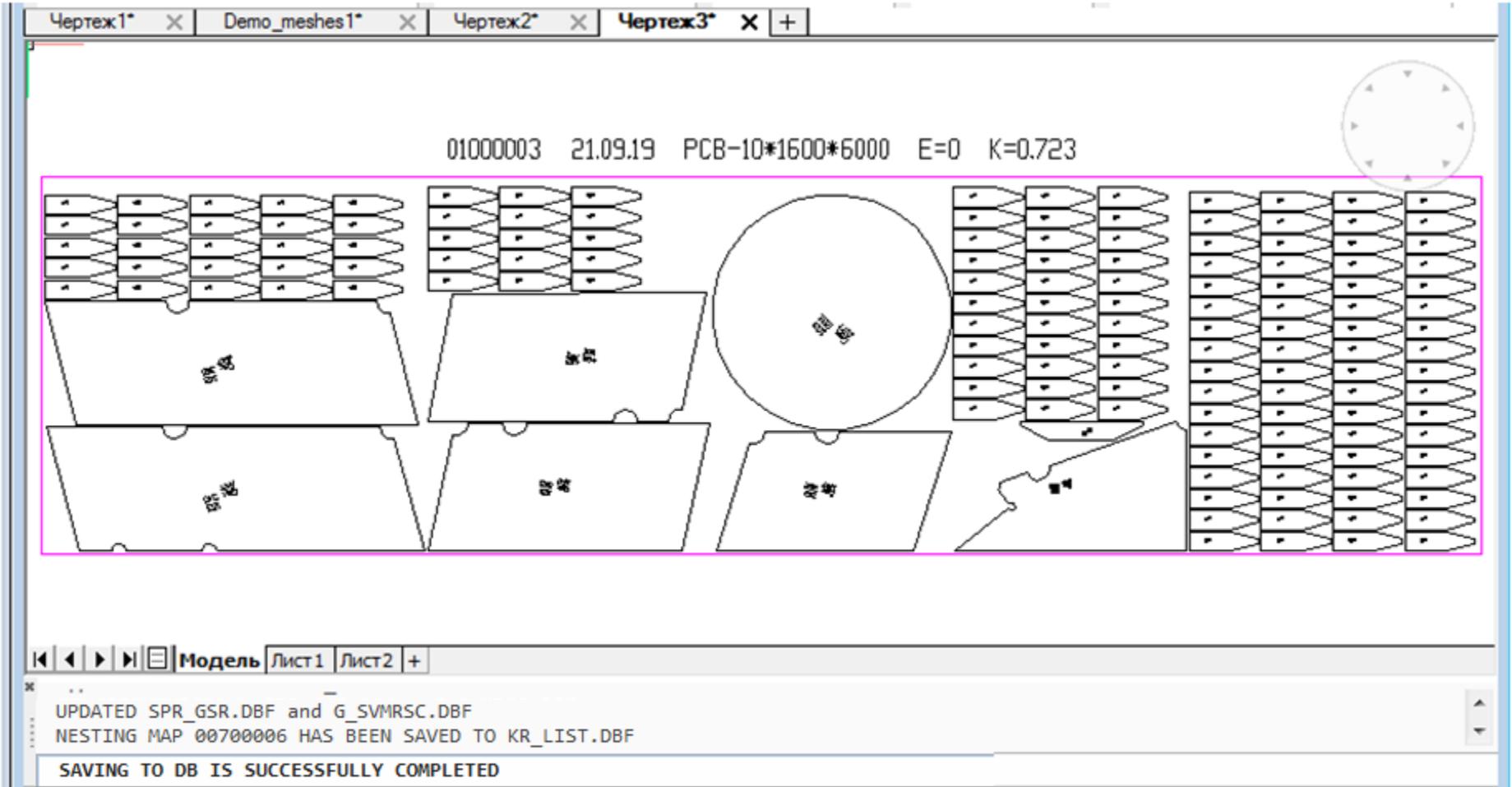
Selecting Nesting Type for JNG (Automatic or Interactive)



Automatic Nesting Process (1)

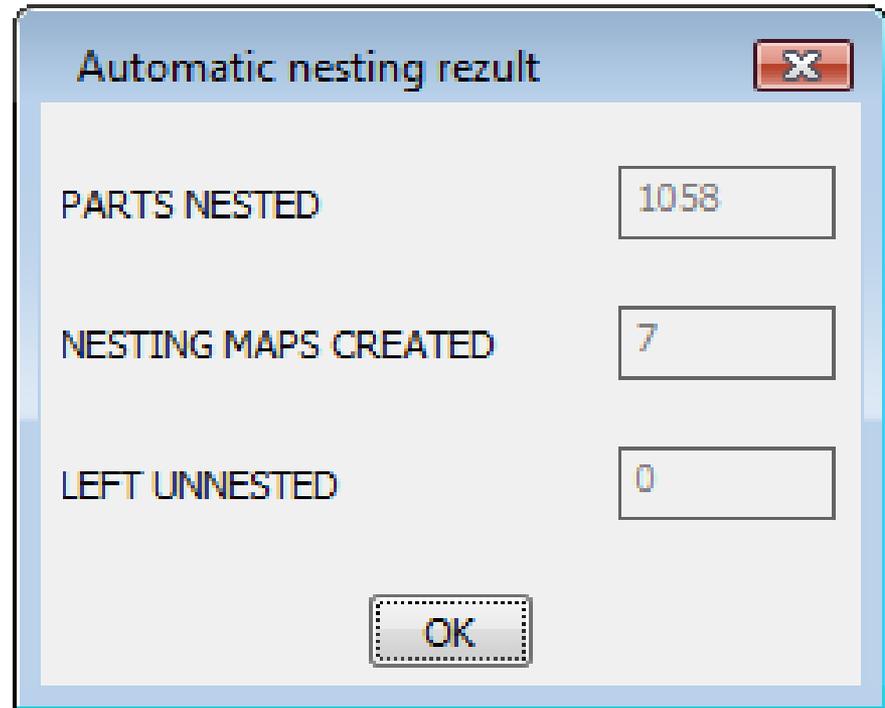


Automatic Nesting Process (2)



Results of Automatic Nesting

- Number of parts nested
- Number of nesting maps
- Number of parts left unnested



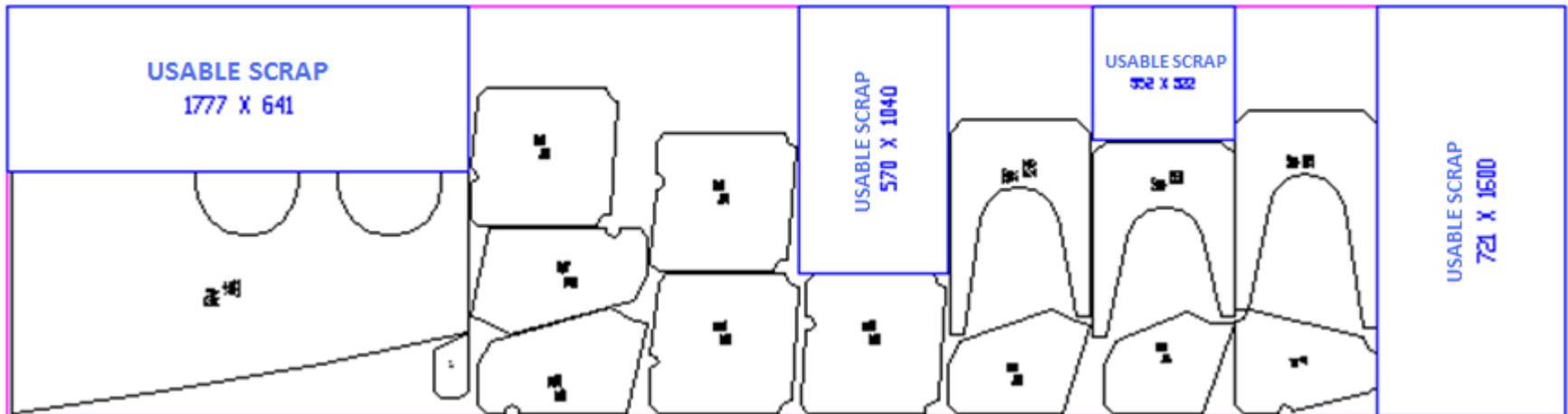
Automatic nesting result

PARTS NESTED	1058
NESTING MAPS CREATED	7
LEFT UNNESTED	0

OK

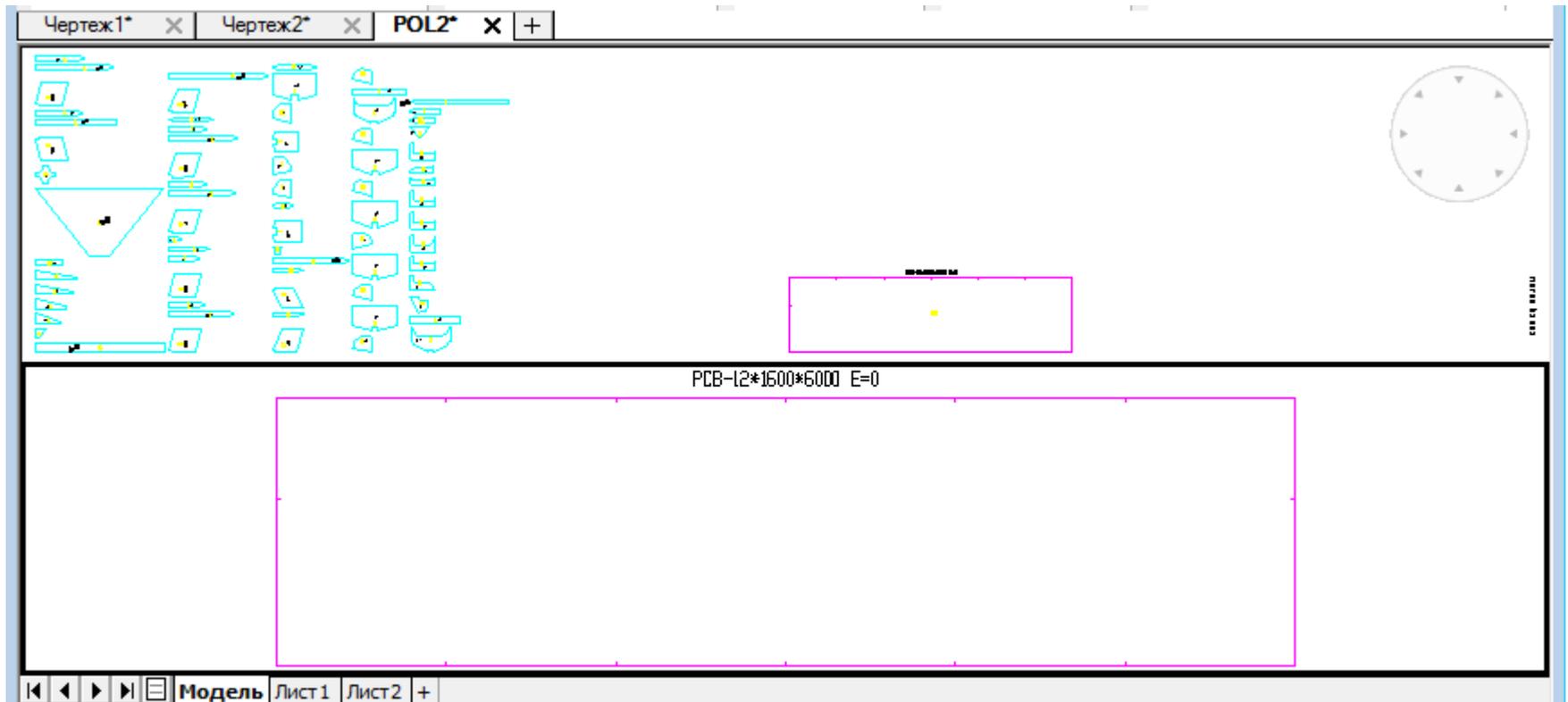
Automatic Definition of Scraps

00800005 03.12.19 PCB-8*1600*6000 E=1.5 K=0.419



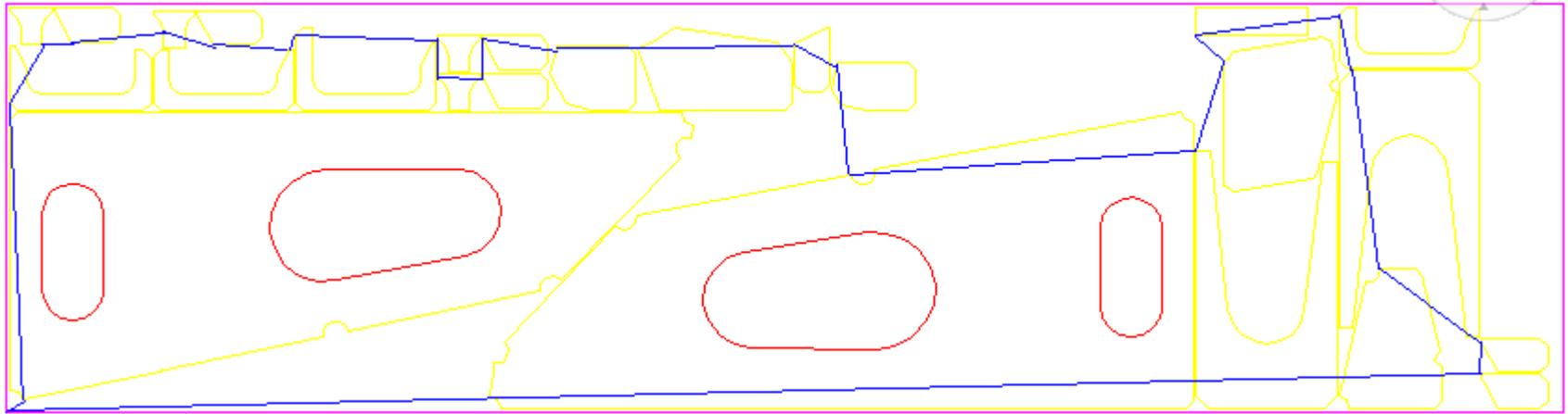
Scraps (in blue) are being defined in the free area of the nesting map (minimal dimensions are 300x300 mm).

Interactive Nesting

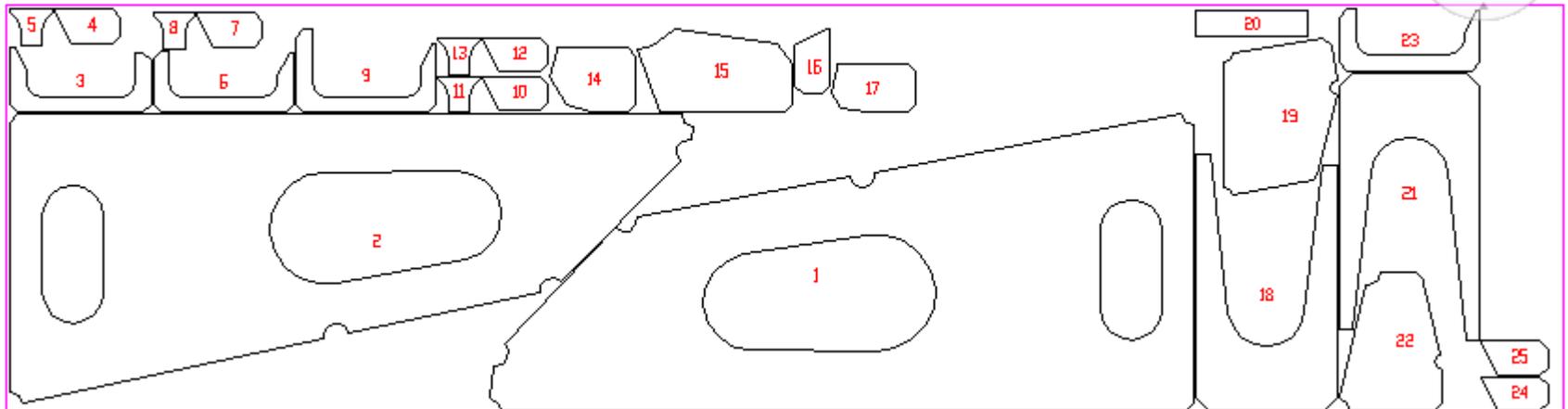


Setting cutting kerf route

00800001 03.12.09 PCB-8*1600*6000 E=1.5 K=0.548



00800001 21.09.19 PCB-8*1600*6000 E=1.5 K=0.556 Lx=15.04 Lp=45.37 n=25



Generation of CNC Program

Create CNC program

Current project <EN103> Alias name <test01> Portion <1>

Ueresov G. W.N. - 51944

	P	NC	R	NM	Ratio	H/K	Grade	Thck.	Gabarit
	+	-		00400001	0.860	0.0	PCB	4.0	1600x600
	+	-		00400002	0.840	0.0	PCB	4.0	1600x600
	+	-		00400003	0.750	0.0	PCB	4.0	1600x600
	+	-		00700006	0.400	1.5	PCB	7.0	457x200
	+	-		00700002	0.680	1.5	PCB	7.0	1600x600
	+	-		00700003	0.650	1.5	PCB	7.0	1600x600
	+	-		00700004	0.690	1.5	PCB	7.0	1600x600
	+	-		00800006	0.690	1.5	PCB	8.0	721x160
	+	*	*	00800001	0.560	1.5	PCB	8.0	1600x600
	+	-		00800002	0.760	1.5	PCB	8.0	1600x600
	+	-		00800003	0.790	1.5	PCB	8.0	1600x600
	+	-		00800004	0.810	1.5	PCB	8.0	1600x600

All CNC CNC Exit

LIST OF NESTING MAPS TO CREATE CNC (1)

00400002

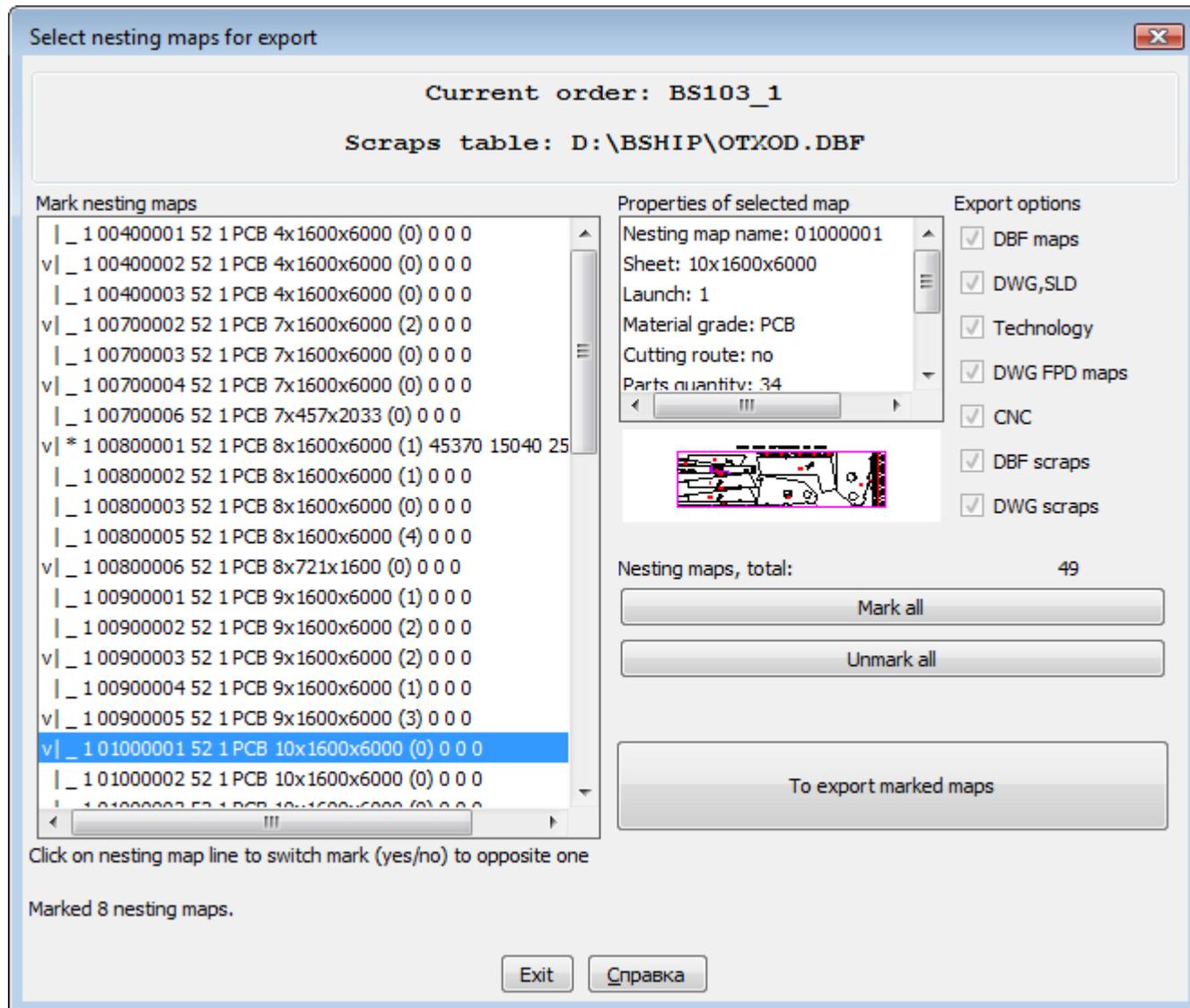
Clear the whole list

To delete double-click on the line

CNC Program

- 3
- BS103.00800001 19/09/21 22-55-41 6000.0 1600.0 8.0
- 4
- 17
- +705+404
- 7
- -78+63
- -492+398-477-87+
- ++10541
- +309+309
- +25588+
- +419-495+485-15+
- -85-504
- -424-834-96-476+
- -4583-4705
- -820-453-349-337+
- -7372-1576
- 18
- -579+388-477-87+
- 17
- -369-591+102-475+
- -11592-2478
- 8
- 5
- -492+11527
- 6
- 7
- ++100
- +309-309
- +4812+
- +309+309
- ++1742
- -309+309
- -321+
- 18
- +-1145
- -585-585-585+-
- -3000+
- -585+585++585-
- ++404
- 17
- -456+911
-

Export of Nesting Maps to Another Project



Graphical Kernel for B-Ship+

- B-Ship+ for its running requires preliminary installation of one of supported graphical kernels:
- BricsCAD v20, v21, ...
- AutoCAD (2019 or other version).
- Parallel work in different graphical kernels is possible.

Free Trial Copy of B-Ship+

- To get free trial copy of B-Ship+ order its installer with pointing out graphical kernel/kernels. After installation get code for approved term.
- Installer with support of different versions of graphical kernel is possible (for example: BricsCAD v21 + AutoCAD 2019, and so on).
- Send a request to **npol50@yandex.ru**

BSB (BricsCAD OEM) Version

- OEM version for B-Ship+ is under construction. In such a case customer has no need to buy BricsCAD, because all the necessary graphical kernel functions are integrated into B-Ship+.

BSB = BricsCAD Solution Build (OEM)

Web Page of the BShipPlus

<http://poleshchuk.spb.ru/cad/2016/bshipe.htm>

B-Ship+ CAD/CAM System

(<http://poleshchuk.spb.ru/cad/2016/bshipe.htm>)

The **B-Ship+** computer-aided system for design and technological preparation of the shipbuilding and machine-building production was developed by the group of physical bodies (reg. No. 2016615527). **B-Ship+** works under Windows, inside the **BricsCAD** v17-v19 system (Pro or Platinum) environment and functionally intergrated with the systems **Ritm-Ship**, **R-Ship+** requiring AutoCAD, as well as with the **N-Ship+** system working inside nanoCAD Plus. BricsCAD is significantly cheaper than AutoCAD and retains possibility of licenses unlimited in time.

Contacts

Saint Petersburg, Russian Federation

Phone: +7 921 7561226, email: npol50@vandex.ru

B-Ship+ is a third-party application on the **Bricsys** site (Russian).

Application Field

The **B-Ship+** computer-aided system is aimed for technical preparation in shipbuilding production up to forming documents for yard workshops. It can also be used in shiprepair and machine-building. Interface language are Russian and English. Adaptation to other languages is possible. The operating system is Windows.

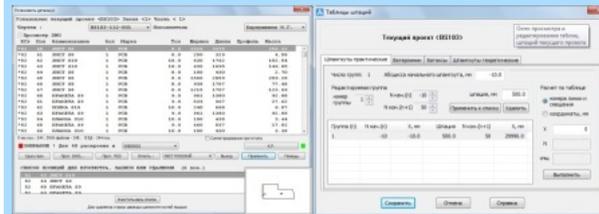
System components

The **B-Ship+** system consists of the following modules:

- **Bdata, Model, Structure, Part, Mdet, Nesting.**

Software modules run using the data base connecting graphical and textual data. Work with several projects/orders is possible.

Sample illustrations



User Documentation

See <http://poleshchuk.spb.ru/cad/2016/bshipe.htm>

PDF docs are downloadable:

- Administrator's guide
- Bdata
- Model
- Structure
- Part
- Mdet
- Nesting

Technical support is provided during agreed period.

Bricsys Application Store

- B-Ship+ for BricsCAD is available in the Bricsys application store:
- <https://www.bricsys.com/applications/a/?bship-a1402-al2424>

Contacts



- InterCAD Co.
- <http://icad.spb.ru>
- SP Poleshchuk N.N.
- npol50@yandex.ru

<http://poleshchuk.spb.ru/cad/eng.html>

Thank you for your attention!