

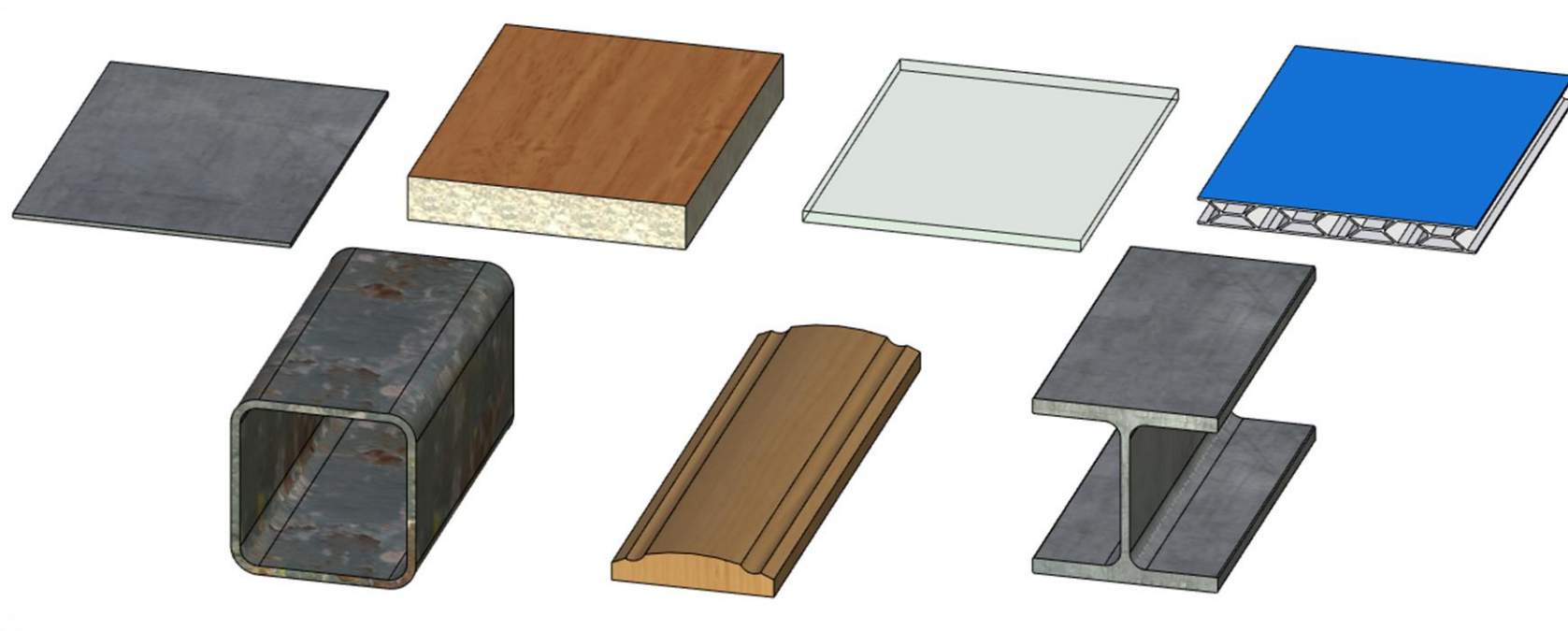
T-FLEX Nesting

T-FLEX Nesting - Automate nesting of sheet materials for various types of cutting

Purpose and application

Area of application:

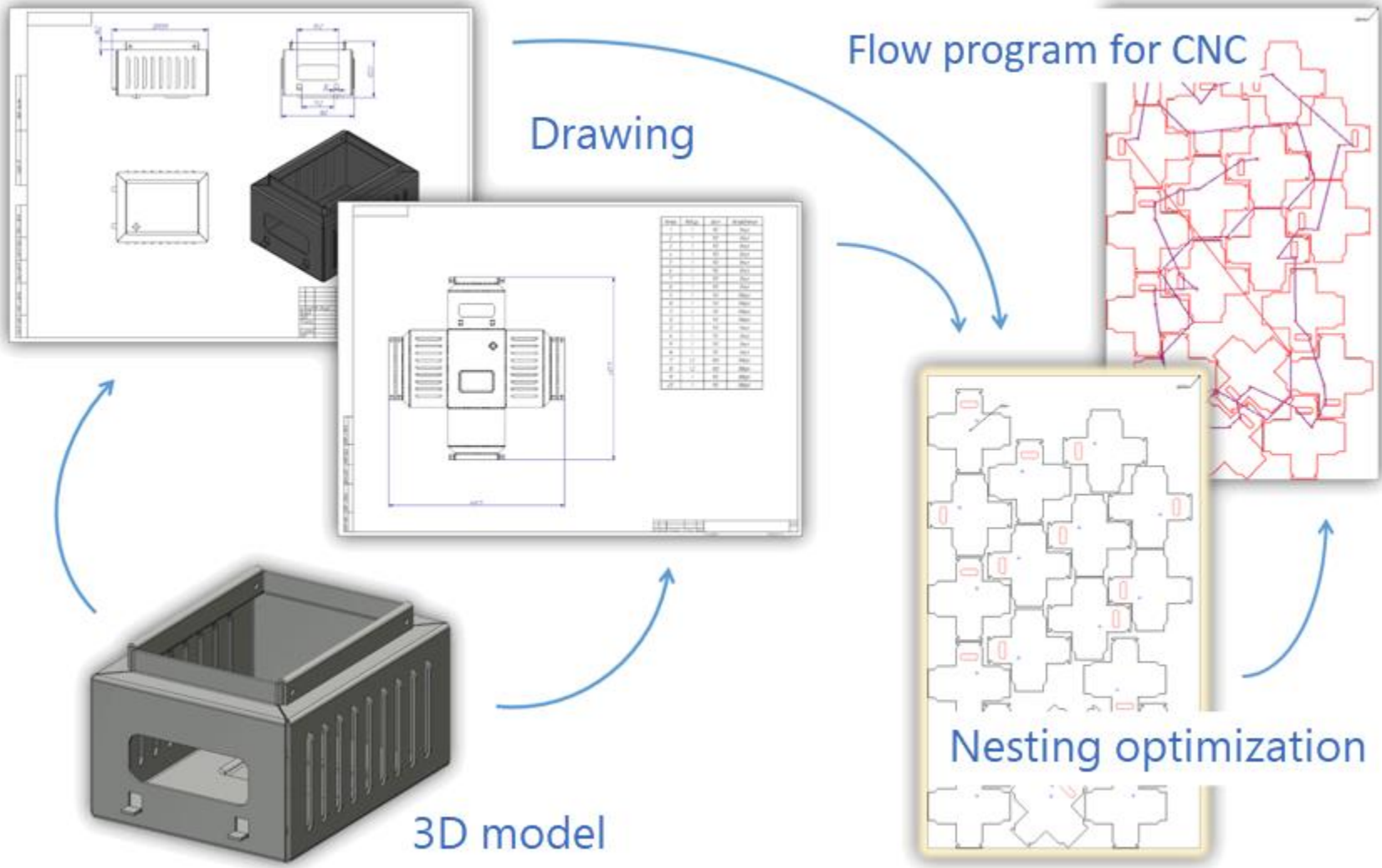
Optimization of placement of parts for obtaining cutting schemes from various **sheet** and **whip** materials, such as rolled metal, wood boards, glass, plastics, etc.



For whom:

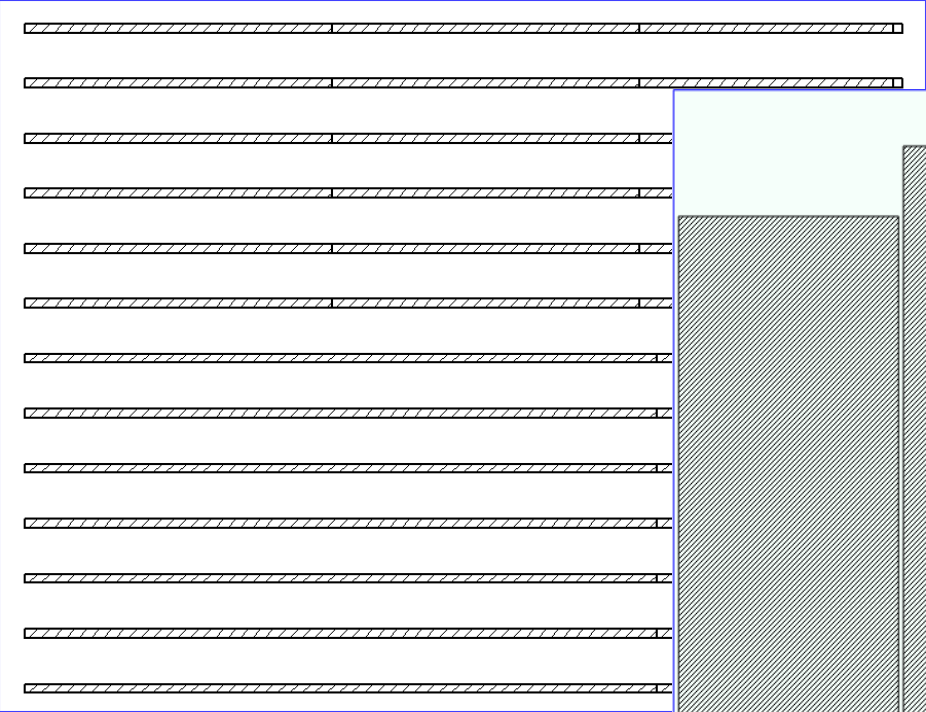
Tool for quantity surveyors and process engineers

T-FLEX Nesting – highly specialized solution

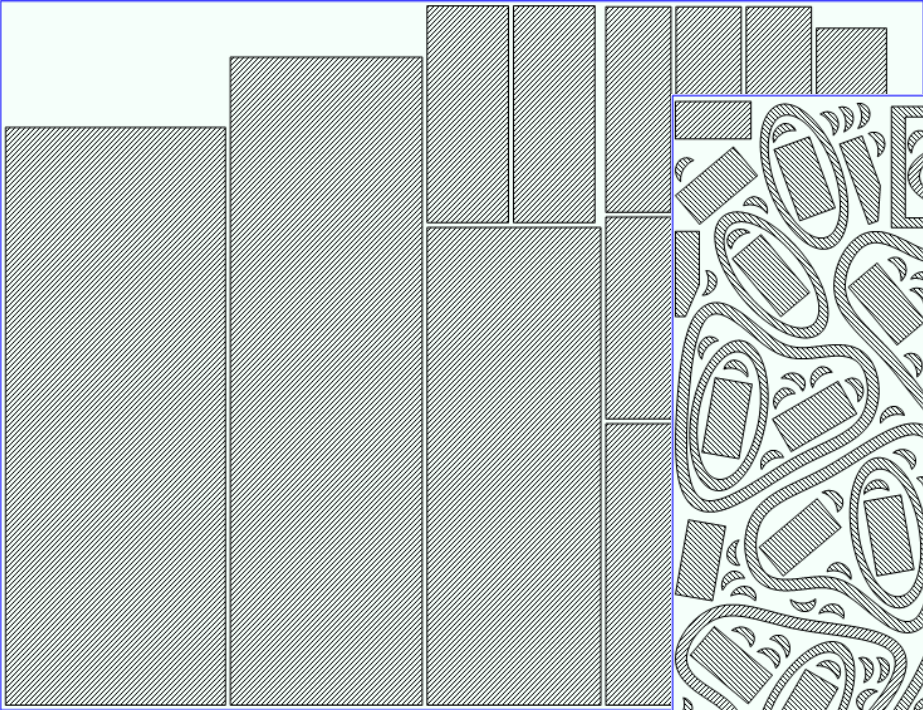


Available nesting types

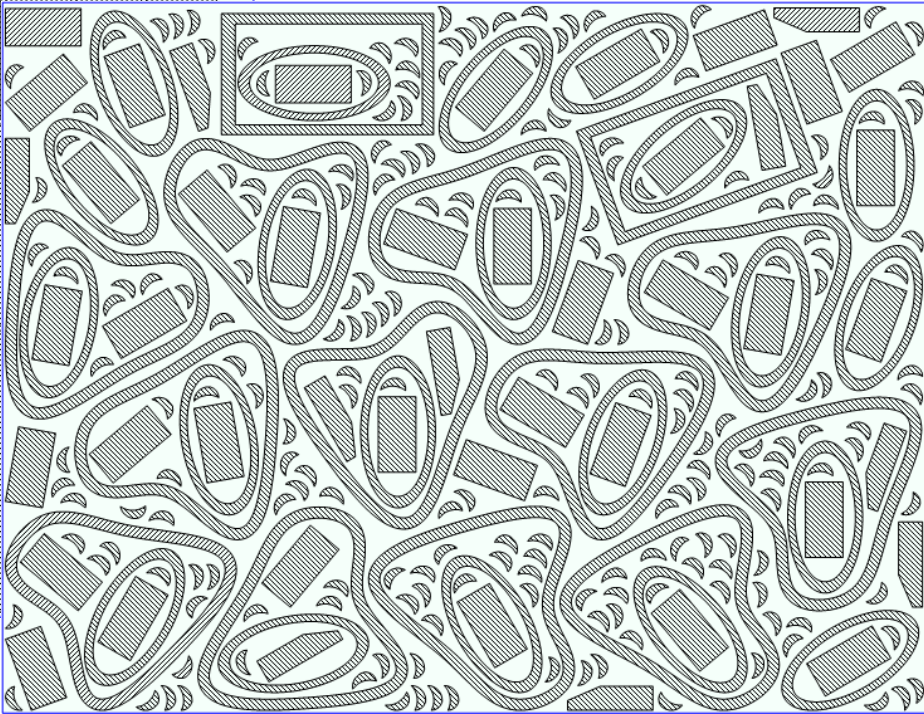
✓ Linear



✓ Guillotine



✓ True-shaping



Linear nesting

Linear nesting used for whip parts

Wooden beam 50x250

Parameters Parts Sheets Layout

Name: Linear nesting: Overlap

Units: mm

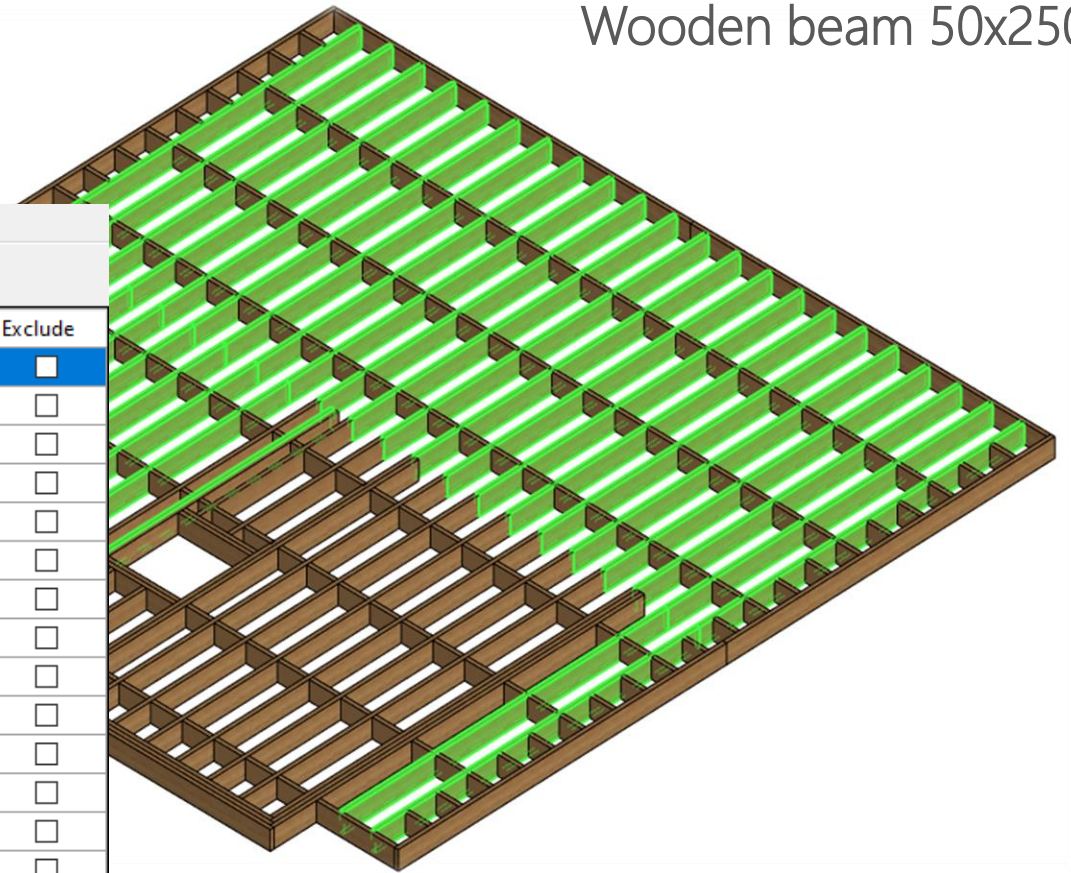
Nesting Parameters

Part to Part Distance: + -

Part to Sheet Distance: + -

Minimal Size of Usable Part width:

	Description ▲	Part No	Material	Width	Quantity	<input checked="" type="checkbox"/> Rotati...	<input type="checkbox"/> Mirror	<input type="checkbox"/> Exclude
1	Beam 50x250x4270	ABC.001.06	Beam 50x250	250	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Beam 50x250x5090	ABC.001.01	Beam 50x250	250	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Beam 50x250x311	ABC.001.16	Beam 50x250	250	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Beam 50x250x4520	ABC.001.05	Beam 50x250	250	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Beam 50x250x4820	ABC.001.02	Beam 50x250	250	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Beam 50x250x4220	ABC.001.07	Beam 50x250	250	36	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Beam 50x250x4720	ABC.001.04	Beam 50x250	250	7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Beam 50x250x301	ABC.001.17	Beam 50x250	100	20	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Beam 50x250x350	ABC.001.15	Beam 50x250	100	121	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Beam 50x250x289	ABC.001.18	Beam 50x250	100	20	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Beam 50x250x250	ABC.001.19	Beam 50x250	100	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Beam 50x250x914	ABC.001.14	Beam 50x250	100	4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Beam 50x250x4770	ABC.001.03	Beam 50x250	100	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Beam 50x250x989	ABC.001.13	Beam 50x250	100	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Beam 50x250x2961	ABC.001.08	Beam 50x250	100	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Beam 50x250x2861	ABC.001.09	Beam 50x250	100	1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Guillotine nesting

Parameters | Parts | Sheets | Layout

Name: Linear nesting: Over

Units:

Nesting Parameters

Part to Part Distance:

Part to Sheet Distance:

Minimal Size of Usable Remnants:

Part width:

T-FLEX Nesting [Guillotine Nesting]

File Results ?

Parameters | Parts | Sheets | Layout

Materials

	Description	Parts Nested	Sheets Used	Parts Nested ...	Utilizat...	Effecti...
1	MDF 16	130 / 130	3 / 7	0 / 0	0,7267	0,9735
2	MDF 25	17 / 17	1 / 1	0 / 0	0,1413	0,9817

Sheets

	Description	Sheet No	Material	Numb...	Utilization
1	Sheet 1		MDF 16	1	0,9054
2	Sheet 2		MDF 16	1	0,6879
3	Sheet 3		MDF 16	1	0,6567

Parts

	Description	Part No	Quantity
1	Rib		10
2	Rib		1
3	Facade		12
4	Lower top panel		1
5	Drawer side		14
6	Drawer side		3
7	Rib		9

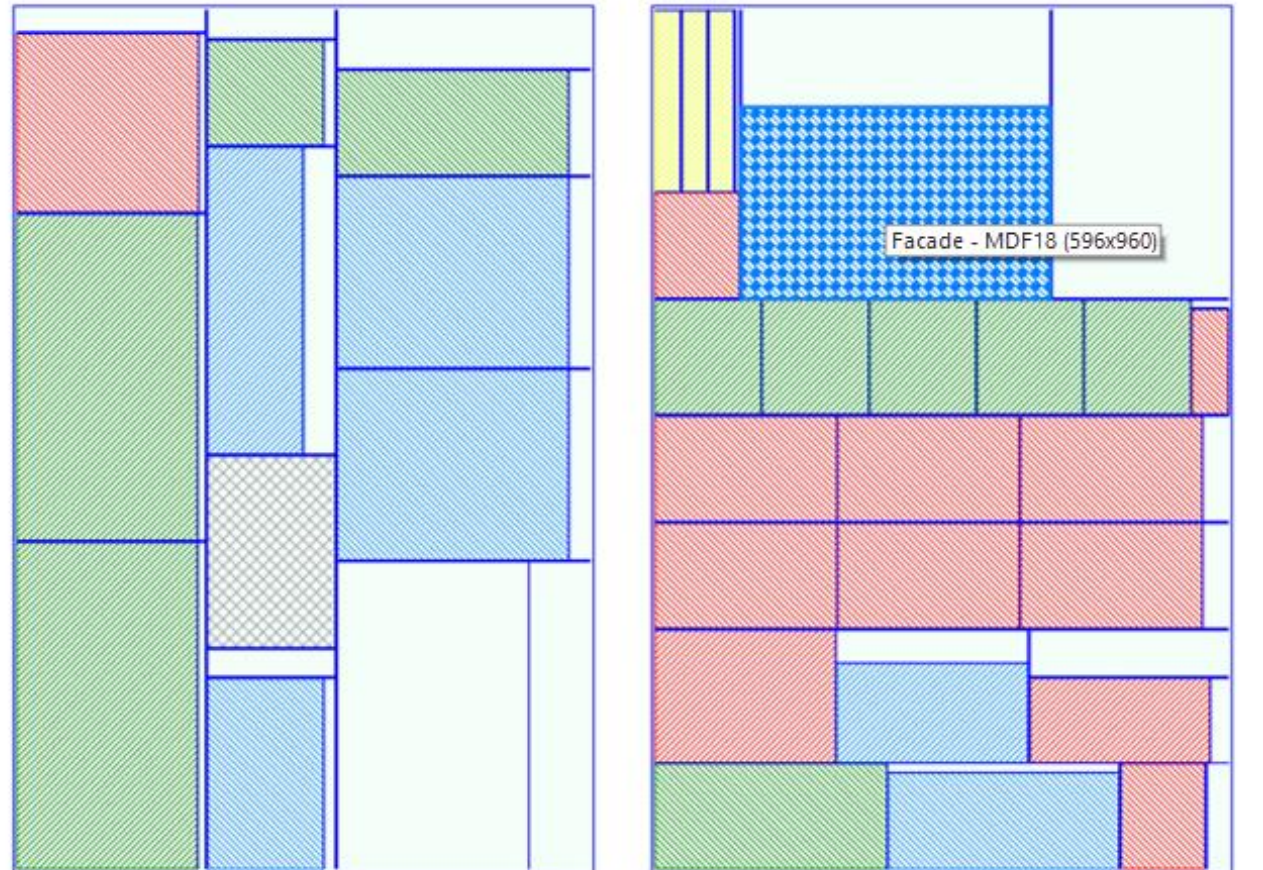
Parameters | Parts | Sheets

Description	Length	Width	Quantity
1 Drawer side panel	21,25	48,95	
2 Drawer back panel			
3 Vertical divider			
4 Rib			
5 Drawer facade			
6 Lower top panel			
7 Lower top panel	66,7	169,4	
8 Lower top panel	52,7	140	
9 Lower top panel	54,45	84	
10 Drawer side panel	21,25	53,95	

Guillotine nesting

Features:

- ✓ Through cuts;
- ✓ Parts inside other parts»;
- ✓ Accounting usable remnants;
- ✓ Accounting defects;
- ✓ Manual reallocation of parts on the nesting plate;
- ✓ Nesting arbitrary shape sheets.



True-shaping nesting

True-shaping nesting used for obtaining schemes for cutting parts of any shape.

The screenshot displays the T-FLEX Nesting software interface for a job named "True-shape Nesting: Alphabet".

Part Parameters Dialog - Simplify Contour:

- No
- Approximate by Straight Segments
- Approximate by Arcs
- Replace by Rectangle
- Number of Contour Segments: 97
- File: C:\Program Files (x86)\T-FLEX\... (Browse...)
- Hatch ID: 0x0900002D (Update)

Materials Table:

Description	Parts Nested	Sheets Used	Utilization
1	210 / 234	2 / 2	0,3446

Sheets Table:

Description	Sheet No	Material	Nu...	Utilizat...
1 Part			1	0,3551
2 Sheet			1	0,3367

Parts Table:

Description	Part No	Quantity
1 A		5
2 B		7
3 C		5
4 D		7
5 E		7
6 a		5
7 b		5
8 d		7
9 1		7

The right side of the image shows two nesting layouts. The top layout is a complex, irregular shape filled with nested letters. The bottom layout is a rectangular sheet filled with nested letters.

True-shaping nesting

Features:

«Minimal Size of Usable Remnants» parameters and manual remnants split

The screenshot displays the T-FLEX Nesting software interface. The main window has tabs for Parameters, Parts, Sheets, and Layout. The Reports window is open, showing a table of remnants.

Materials Table:

	Description	Parts Nested	Sheets Used	Utilization
1		237 / 308	2 / 2	0,4002

Sheets Table:

	Description	Sheet No	Material	Num...	Utilizati...
1	Part			1	0,4075
2	Sheet			1	0,3947

Parts Table:

	Description	Part No	Quantity
1	A		7
2	B		7
3	C		7
4	D		1
5	E		1
6	a		7
7	b		7

Reports - Remnants Table:

Description	Size
Remnants-Part	1 373,39
Remnants-Part	2 772,75
Remnants-Part	1 216,07
Remnants-Part	1 449,87
Remnants-Part	121 287,52
Remnants-Part	12 340,27
Remnants-Part	24 623,11
Remnants-Sheet	210 362,91
Remnants-Sheet	1 184,42
Remnants-Sheet	1 184,42
Remnants-Sheet	1 184,42
Remnants-Sheet	1 083,04
Remnants-Sheet	1 083,04
Remnants-Sheet	1 083,04
Remnants-Sheet	1 083,04
Remnants-Sheet	1 083,04
Remnants-Sheet	1 083,04
Remnants-Sheet	1 083,04
Remnants-Sheet	1 083,04
Remnants-Sheet	4 463,03

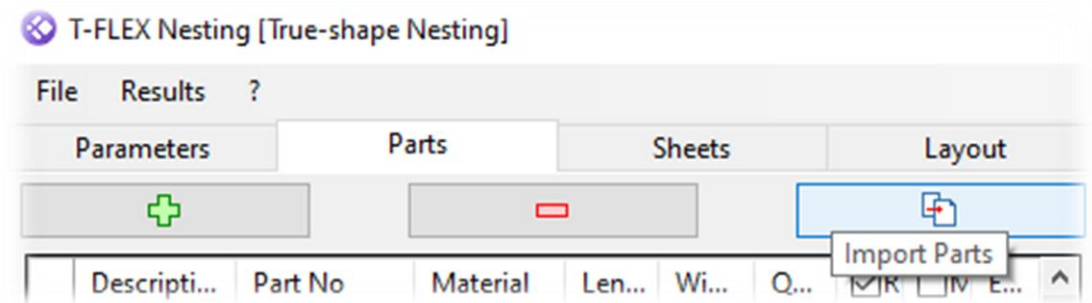
Methods of forming data for nesting project (1-2)

1. Manually add parts or workpieces directly in the T-FLEX Nesting interface;
2. Adding parts and workpieces by selecting hatches in T-FLEX CAD;
3. Import of parts and workpieces :

2.1. Import contours from a special layer in T-FLEX CAD document;

2.2. Import parts from other T-FLEX Nesting projects;

4. Copying data about parts from external tables (for example, Microsoft Excel) via the clipboard.



Methods of forming data for nesting project (2-2)

5. Generating data for a nesting project based on the product structure

1

2

3

T-FLEX Nesting [Guillotine Nesting] Parameters

Description	Part No	Material	Length	Width	Qu...	To ...	✓R..	Ex...
1 Decor 135x115	KP.001.04.0	Light Wood	135	115	1	0	✓	□
2 MDF 8 mm		Light Wood	1200	2400	1	0	✓	□
3 Aluminimu...	EN 2599	Aluminium	1100	20	1	0	✓	□
4 Tag	KP.001.05.0	Aluminium	90	20	1	0	✓	□
5 Angle	KP.001.03.0	Steel	100	100	1	0	✓	□
6 Casing 300x...	KP.001.01.0	Steel	100	100	1	0	✓	□
7 Rib 304	KP.001.02.0	Steel	100	100	1	0	✓	□
8 Steel sheet 2 ...	EN10111	Steel	3000	1500	1	0	✓	□

Selected parts: 1 of 8

Product Structure

Element Type	Description
Part	Decor 135x115
Sheet	MDF 8 mm
Sheet	Aluminium tape 0.5 mm
Part	Tag
Part	Angle
Part	Casing 300x260
Part	Rib 304
Part	Rib 304
Sheet	Steel sheet 2mm
Sheet	EN 10111
Sheet	Steel
Sheet	3000 1500
Sheet	0 1
Sheet	0 1
Sheet	0 True-shape
Sheet	0 True-shape
Sheet	0 True-shape
Product	Lid 300x260
Product	KP.001.00
Product	0 0
Product	1 1
Product	1 1
Product	1
Product	✓
Product	✓

Nesting optimization results

- Calculation statistics
- Utilization
- Export to third-party programs
- Nesting map
- Nesting layout
- Reports: txt, xml, xls

The screenshot displays the T-FLEX Nesting [Guillotine Nesting] interface. The 'Materials' table shows the following data:

Description	Parts Nested	Sheets Used	Parts Nested ...	Utilization	Effective Utilization
1 Sheet clipboard 16	54 / 54	5 / 6	0 / 0	0,8604	0,8604

The 'Sheets' list shows 5 sheets of MDF. The nesting layout shows a 2080x2800 sheet with parts including 'Lower top panel 1 piece', 'Rib 1 piece', 'Vertical divider 1 piece', 'Drawer facade 1 piece', and 'Drawer side panel 1 piece'. Dimensions are provided for various parts and the overall sheet. A table at the bottom right shows utilization of 0.85142.

The '2D documents' section lists the following export options:

- PDF (*.pdf) - Format of electronic documents developed by Adobe Systems
- AutoCAD DXB (*.dxb) - Binary format developed by Autodesk for data interoperability
- T-FLEX Metafile (*.bmf) - Format for T-FLEX CAD graphics data exchange
- AutoCAD DWG (*.dwg) - AutoCAD documents format developed by Autodesk
- Enhanced Windows Metafile (*.emf) - Enhanced Metafile - extended format of vector and bitmap graphics in Windows
- T-FLEX Metafile without hidden lines (*.bmf) - Format for T-FLEX CAD graphics data exchange (vector hidden lines removal)
- AutoCAD DXF (*.dxf) - Text format for data exchange developed by Autodesk
- Windows Metafile (*.wmf) - Windows MetaFile - vector and bitmap graphics format in Windows
- BMP (*.bmp) - Windows raster graphics format
- JPEG (*.jpg, *.jpeg) - Raster graphics format of Joint Photographic Experts Group
- GIF (*.gif) - Raster graphics format
- TIFF (*.tiff, *.tif) - Raster graphics format for publishing
- PNG (*.png) - Raster graphics format with lossless data compression

Reports

T-FLEX Nesting [Guillotine Nesting]

File Results ?

Parameters Parts Sheets

Materials

Description	Parts Nested	Sheets Used	Part
1 Sheet clipboard 16			

Sheets

Description
1 Sheet MDF
2 Sheet MDF
3 Sheet MDF
4 Sheet MDF
5 Sheet MDF

Parts

Description
1 Lower top panel
2 Rib
3 Drawer side panel

Reports

General Detailed Info Remnants

Sheets

Description
1 Sheet MDF
2 Sheet MDF
3 Sheet MDF
4 Sheet MDF
5 Sheet MDF
6 Sheet MDF

Parts

Description
1 Lower top panel
2 Rib
3 Lower top panel
4 Lower top panel
5 Drawer back panel
6 Drawer side panel
7 Drawer facade

Reports

General Detailed Info Remnants

Description	Dimensions	Quantity
Remnants-Sheet MDF	52,40x28,00	1
Remnants-Sheet MDF	58,20x18,00	1
Remnants-Sheet MDF	48,15x17,65	1
Remnants-Sheet MDF	10,60x82,45	1
Remnants-Sheet MDF	310,00x18,00	1
Remnants-Sheet MDF	19,00x190,00	1
Remnants-Sheet MDF	34,15x49,90	1
Remnants-Sheet MDF	81,05x129,35	1
Remnants-Sheet MDF	11,20x78,65	1

Имя файла: Guillotine Nesting Wardrobe.txt

Тип файла: Text Document (*.txt)

Text Document (*.txt)

XML Document (*.xml)

Excel Document (*.xlsx)

Скрыть папки

Sheet clipboard 16 66,70x169,40 Sheet MDF #1

Export... Close

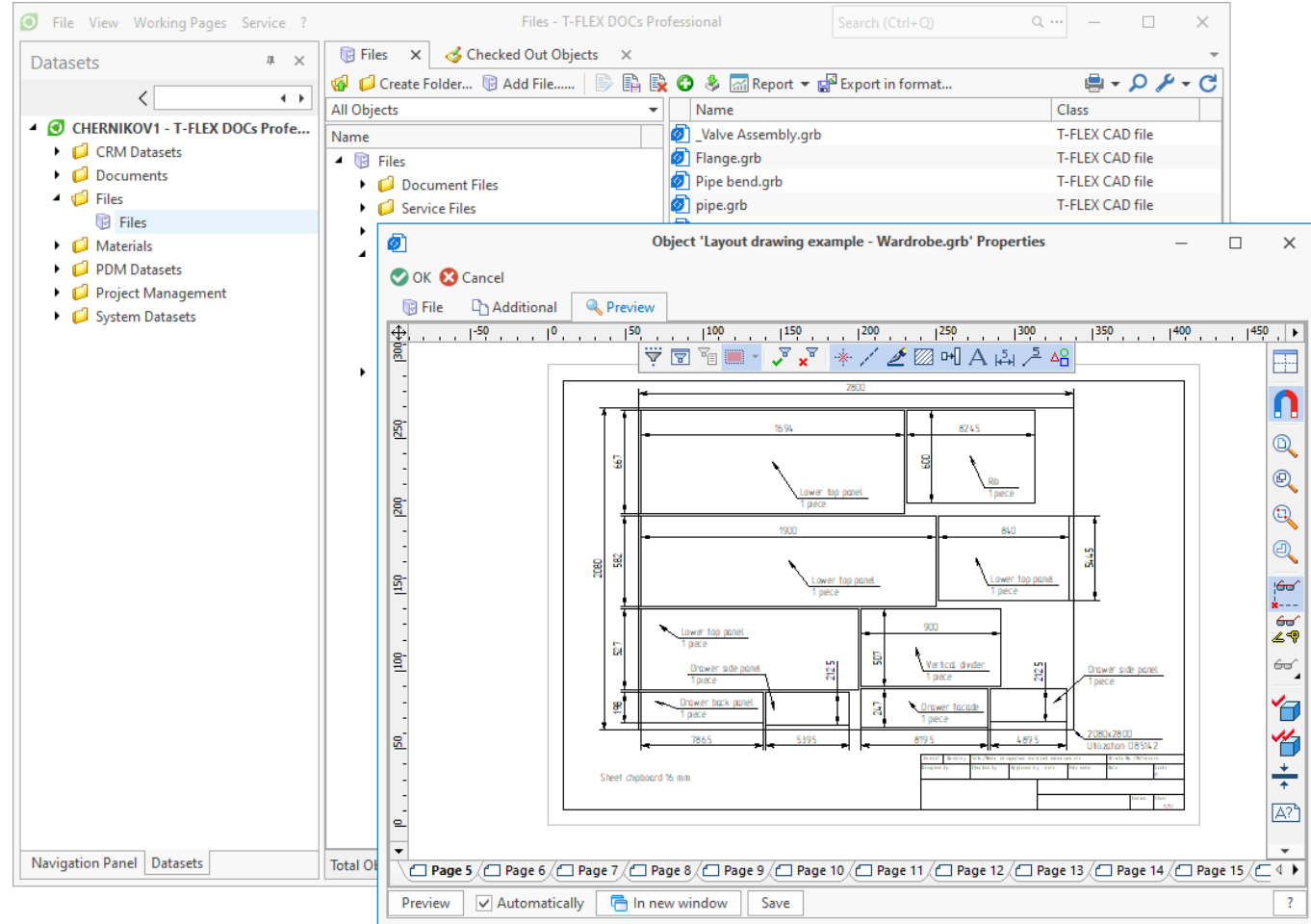
Export... Close

T-FLEX Nesting main features

1. Associative relation between parts contours and sheets with the original geometry;
2. Manage usable remnants: dimensions and shapes;
3. Exchange of raw data and nesting results with other systems;
(based on the T-FLEX CAD functionality);
4. Various ways to add data to a nesting project;
5. Nesting layouts are used in the generation of flow programs for CNC machines;
6. The "T-FLEX DOCs + T-FLEX Nesting" bundle is used to create specialized solutions.

T-FLEX Nesting and T-FLEX DOCs integration

- ✓ Basic software integration mechanisms for creating specialized solutions have been developed.
- ✓ The solution configuration is performed in the T-FLEX DOCs.





T-FLEX PLM

For more information about T-FLEX CAD
and other Top Systems' products
you may contact directly our company
or any regional representative

www.tfex.com | tfex@topsystems.ru

CONTACT US

 **TOP
SYSTEMS**