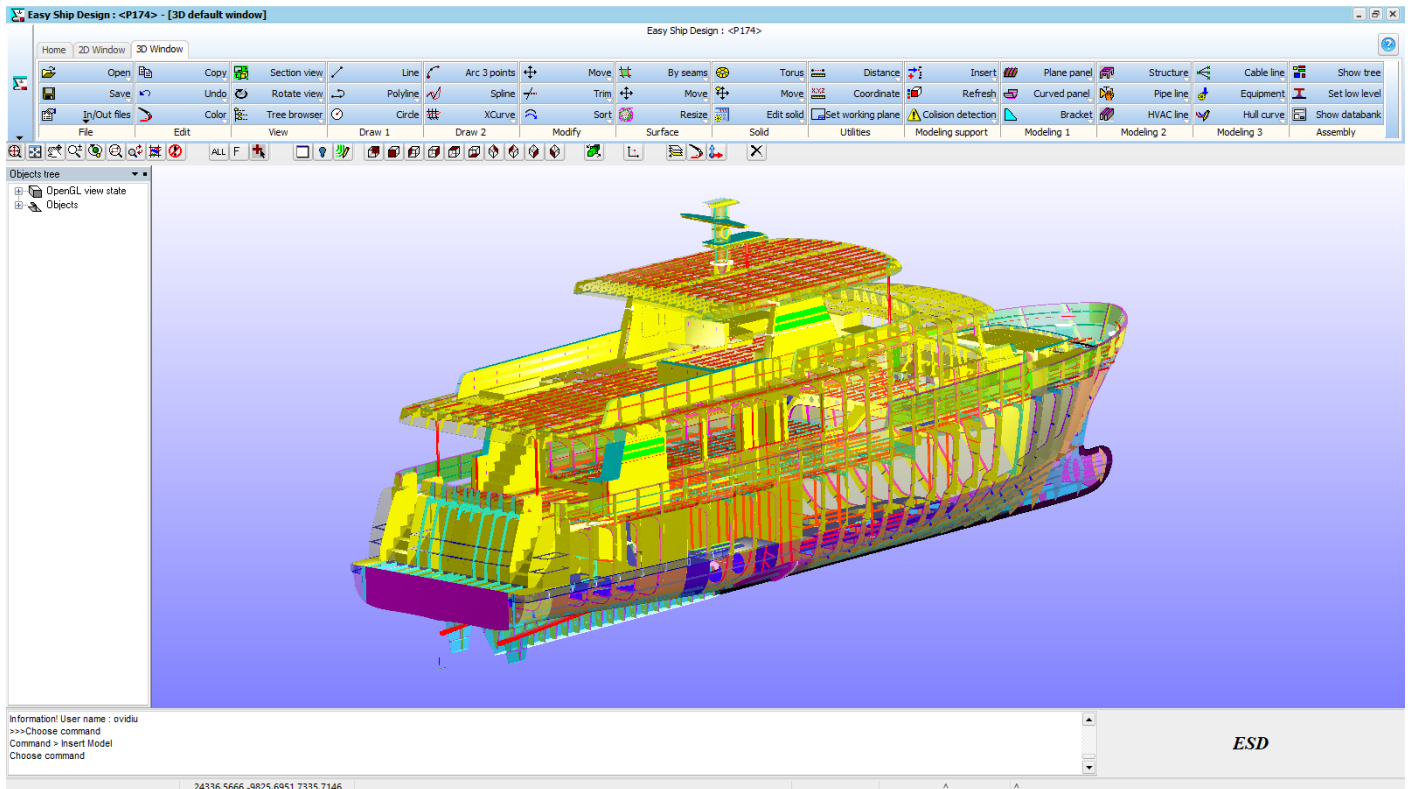


EasyShipDesign

- Overview



The EasyShipDesign(ESD) it is a ship design system developed to create a single 3D model ship database.

The information in the Ship Database Model contains all the technical data that is needed to define the final product. It addresses all phases in the design and production process. Information from one stage can be used in the next stage. All types of drawings, parts and reports can be derived from the model.

Comparing with the existing design system from the market the EasyShipDesign offer some new and unique feature like : full integration , one single application for everything , one single database , a fully integrated nesting system , objects topology , standard contour definitions defined by user , easy to learn because the working style is like common application like AutoCad.

The purpose of this document is to present and explain the EasyShipDesign concept and to give a general overview of the EasyShipDesign shipbuilding system. The document covers the main application functions, features and concepts in ESD, but for the purpose of clarity, explanations have been simplified.

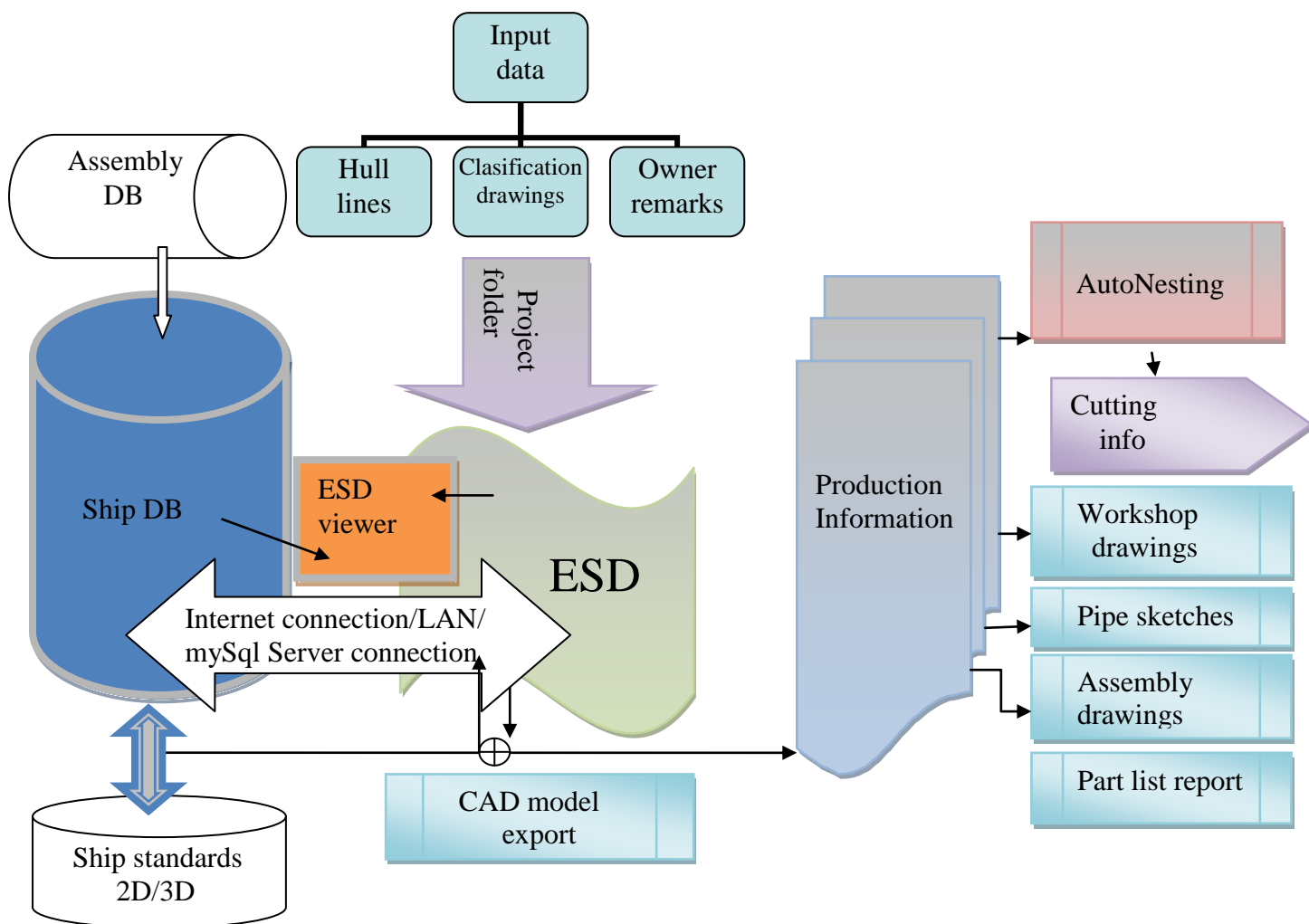
The application have a lot state of art tools which make possible the next features:

- ✓ Tools for hull lines manipulation and intersection
- ✓ Tools for surface creation, manipulation and intersection
- ✓ Tools for standard parametric contours
- ✓ Tools for plane panel creation and manipulation 2D/3D
- ✓ Tools for curved panel creation and manipulation 2D/3D

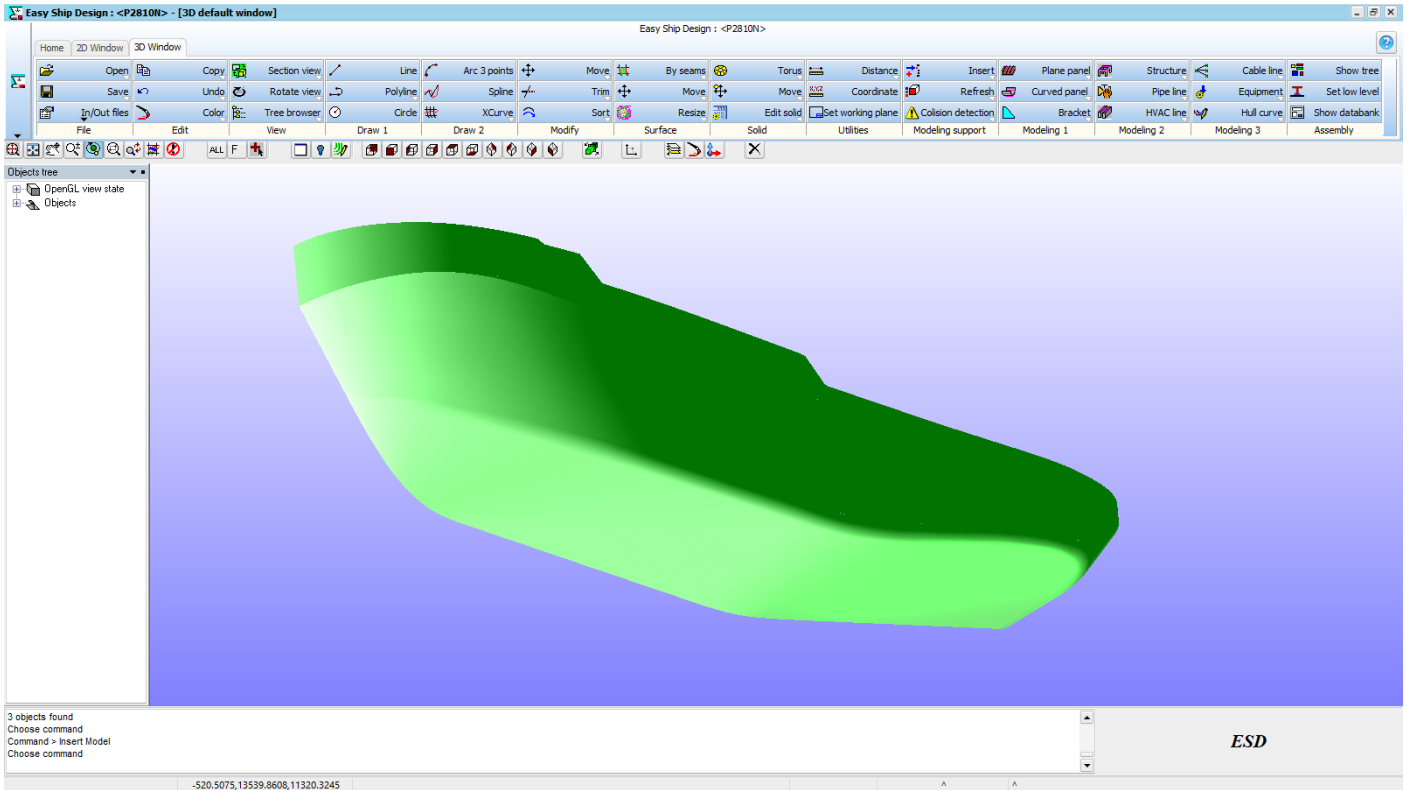
- ✓ Tools for automatically parts position number
- ✓ Tools for automatically drawing section creation
- ✓ Tools for automatically parts list creation
- ✓ Tools for pipes , cable trays and HVACs creation
- ✓ Tools for structures
- ✓ Tools for outfitting components creation
- ✓ Tools for view / scene manipulation
- ✓ Tools for production information, plate parts , profile parts , templates, profiles sketches , inverse bending line , pipe spools, pipes isometrics, parts list reports
- ✓ Tools for databank maintenance, databank objects manipulation
- ✓ Tools for dxf,step,acis,x3d,stl input/output interface 2D/3D .
- ✓ Tools for 2D drafting like AutoCad
- ✓ Tools for assembly model and assembly drawings, welds detection
- ✓ Customizable drawing forms ; reports in Excel csv file format

All that operations are made in interactive mode and the application checks the user action.

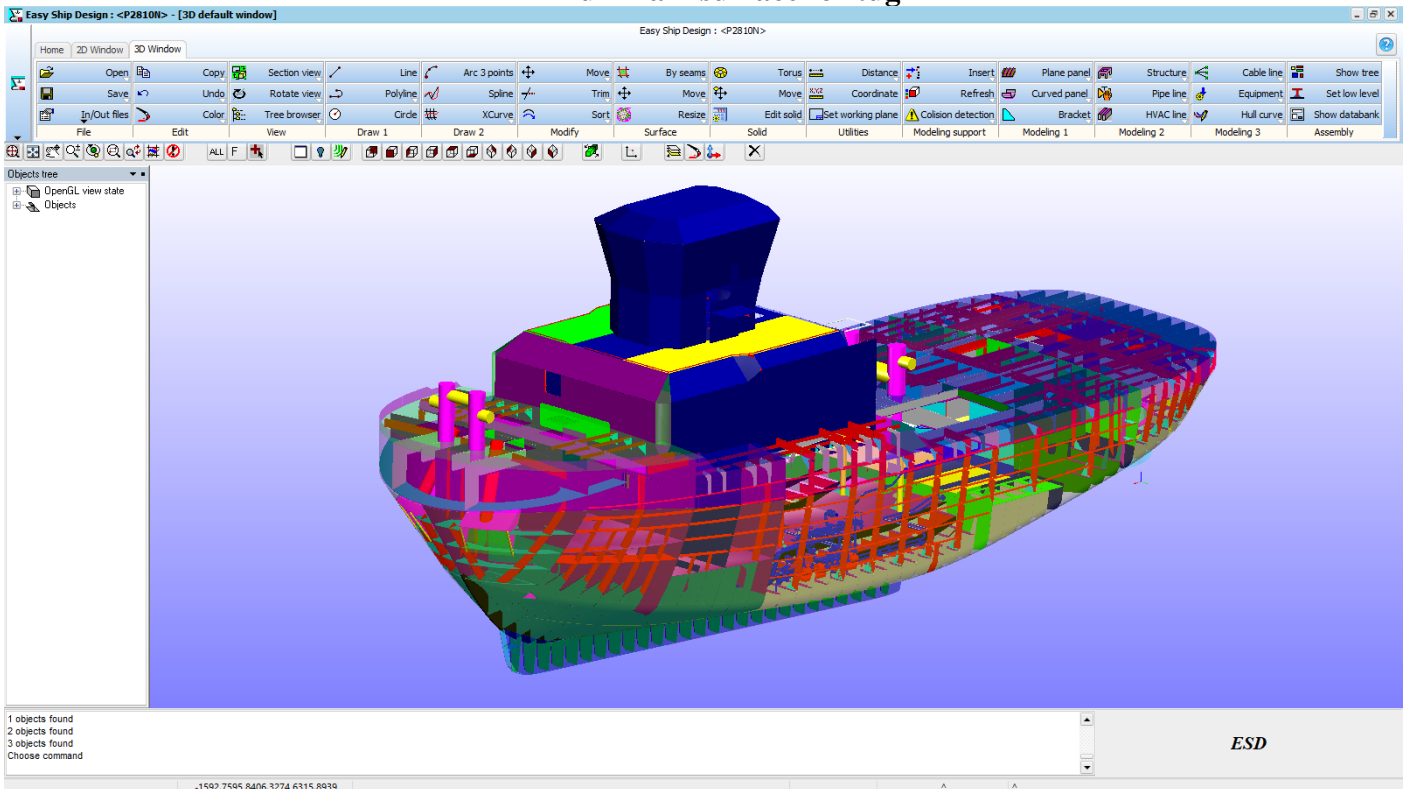
The application working sketch



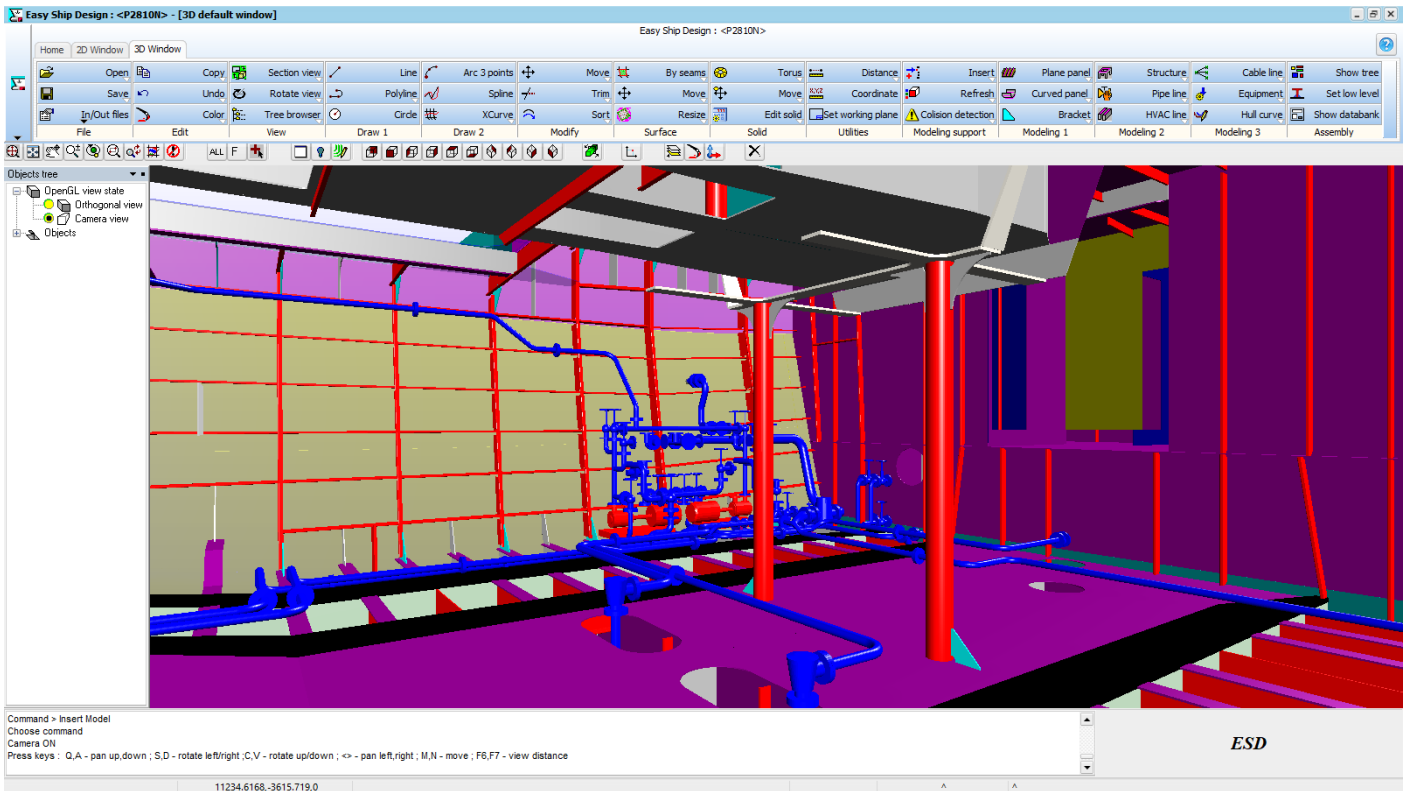
- Screenshots



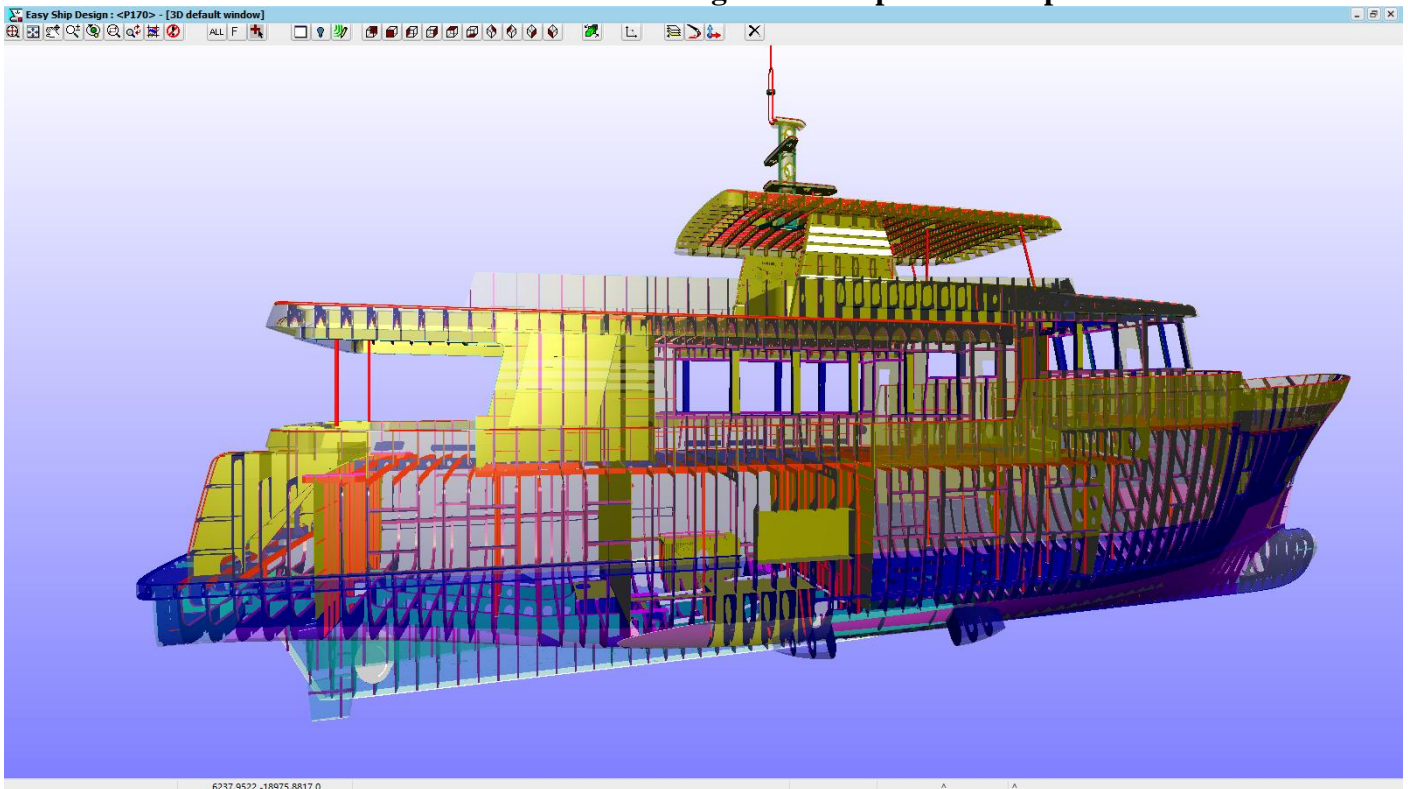
Hull main surface for tug



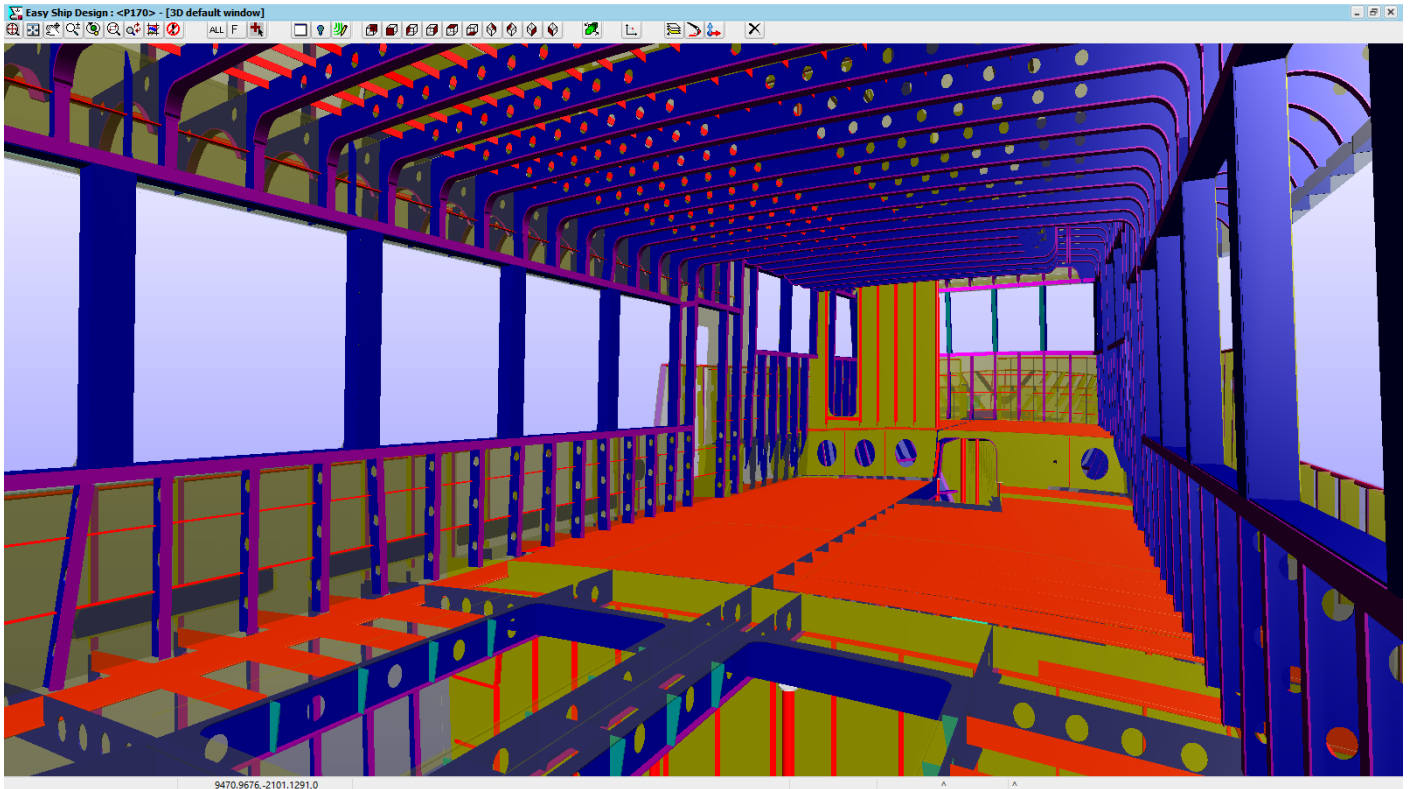
Tug side view shade rendering



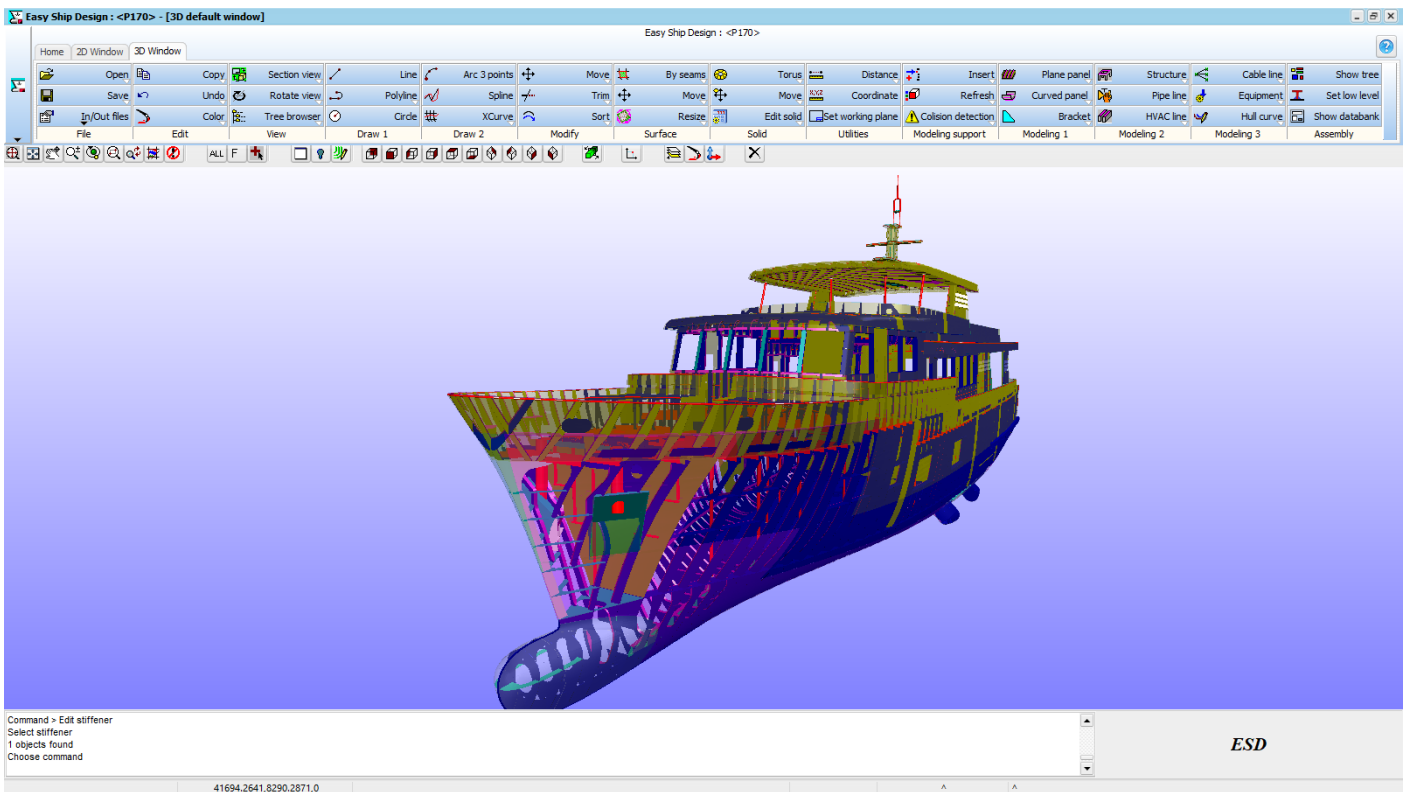
Camera view from inside tug with transparent shell plates



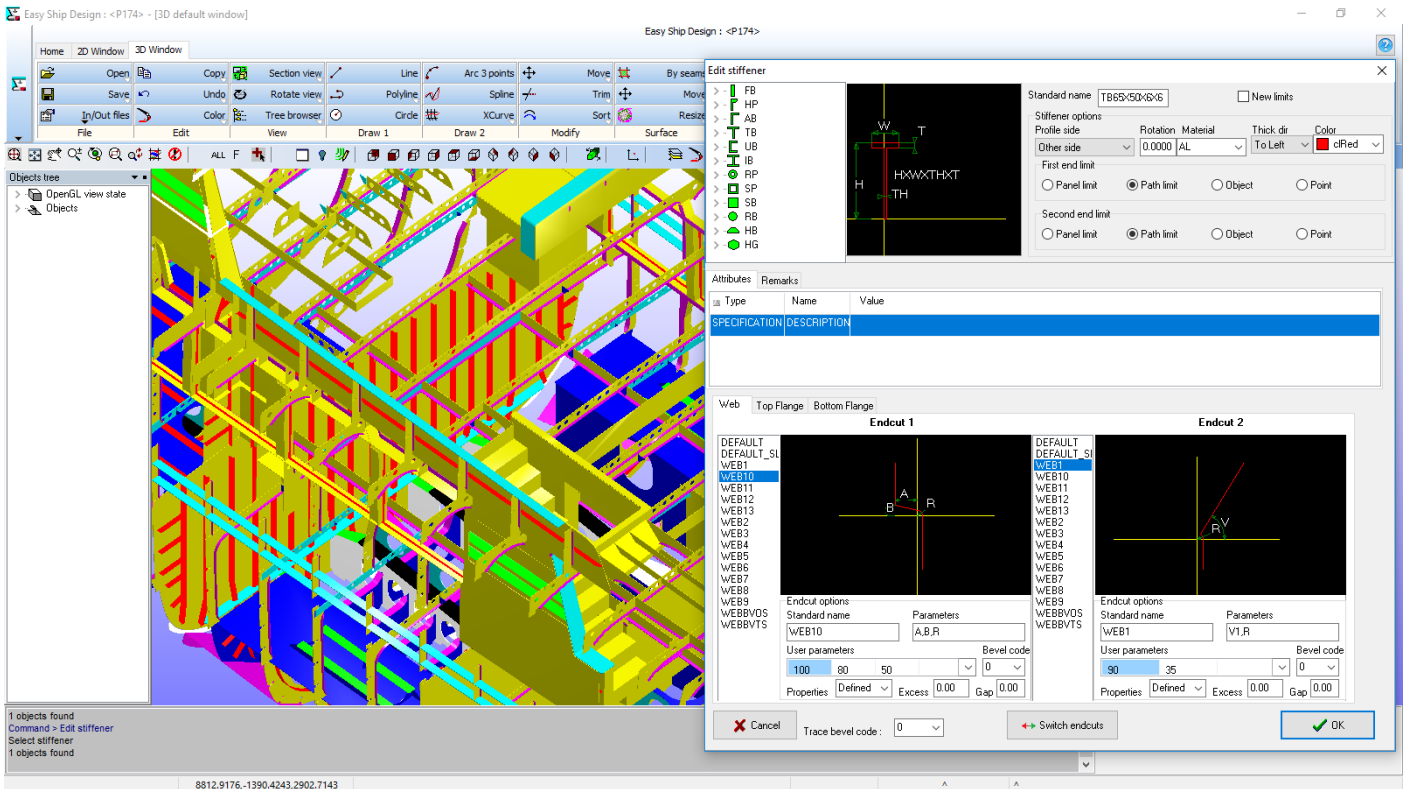
Camera side view motor yacht 36m with transparent shell plates



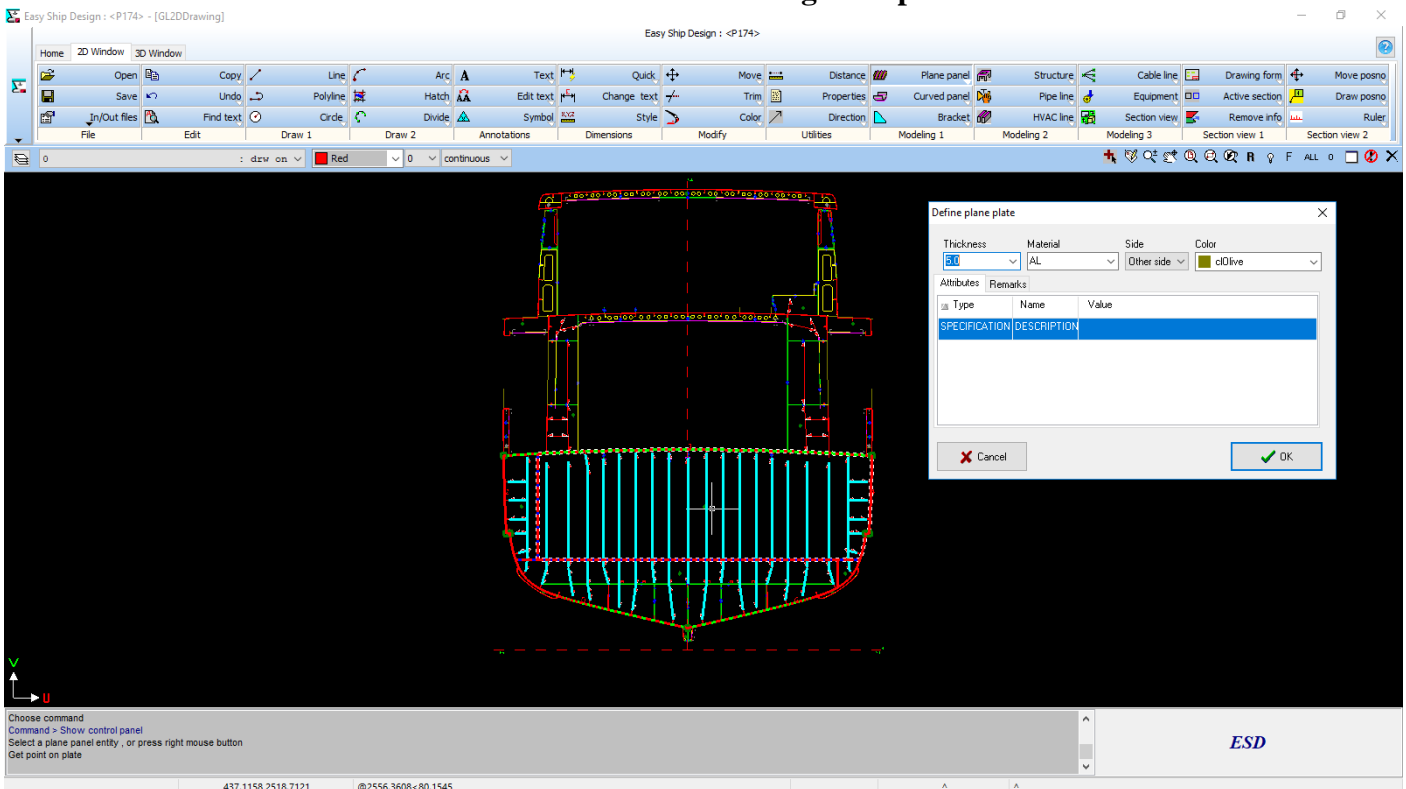
Camera view from inside motor yacht 36m with transparent shell plates



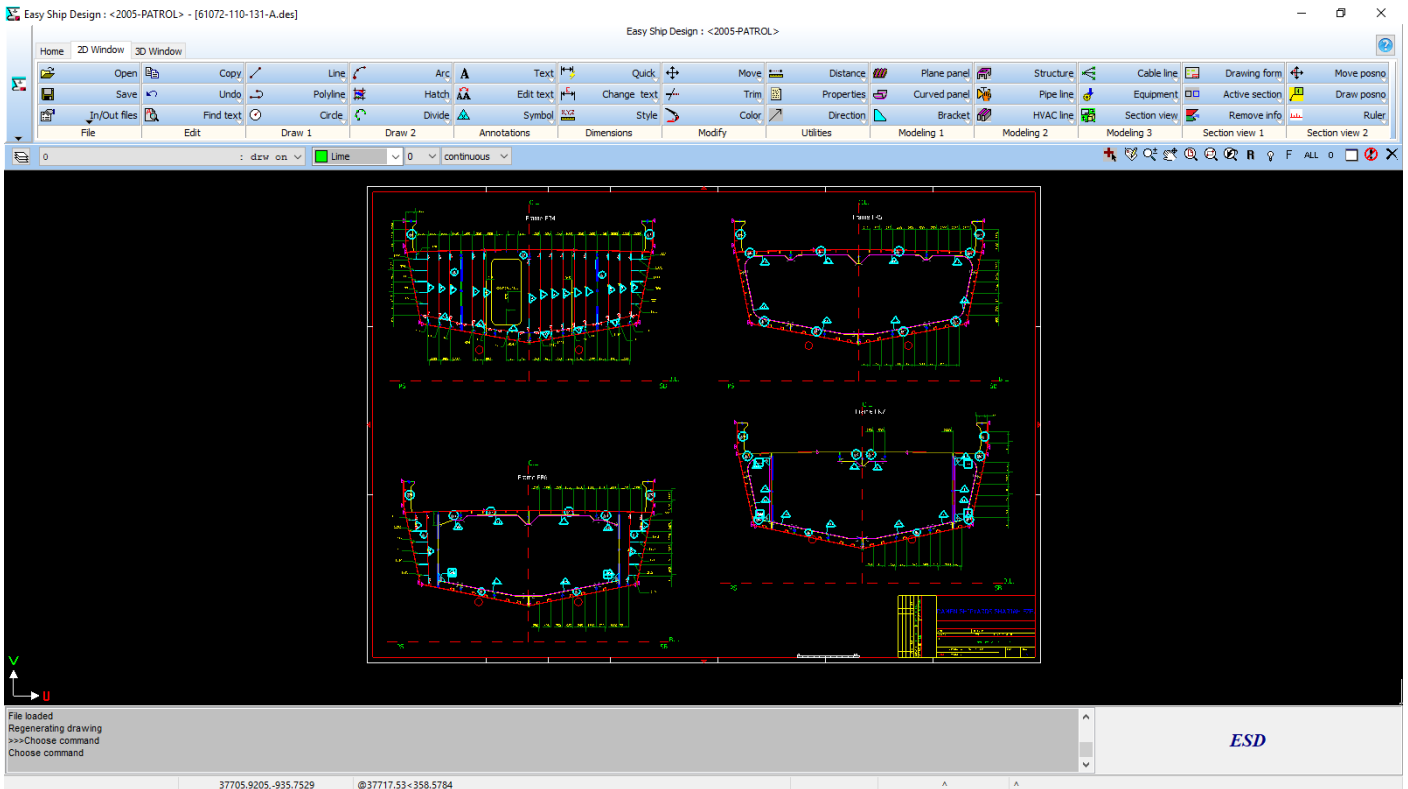
Camera view motor yacht 36m with transparent shell plates



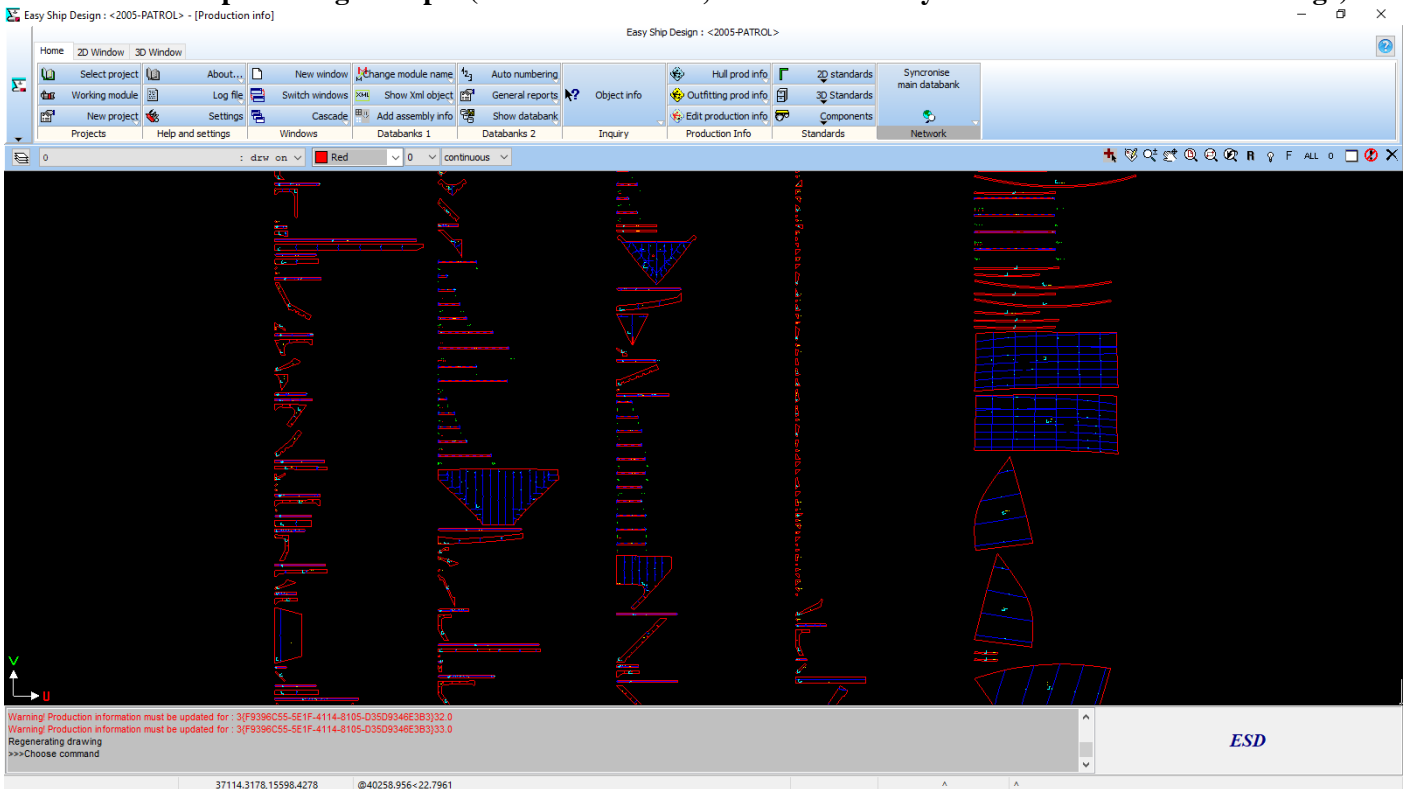
Stiffener 3D modeling example



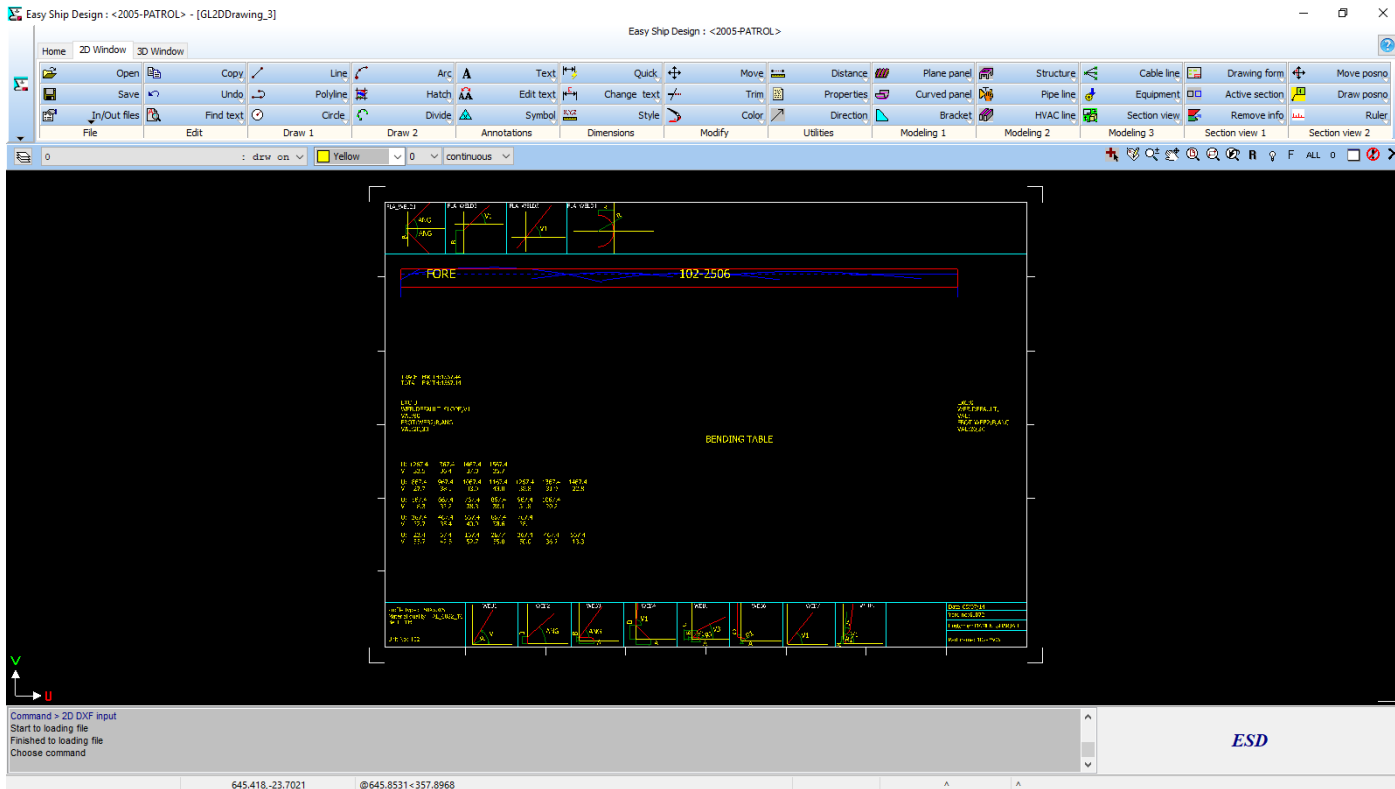
2D section modeling (plane panels)



Workshop drawing example (all section are live, are automatically recreated if the model is change)



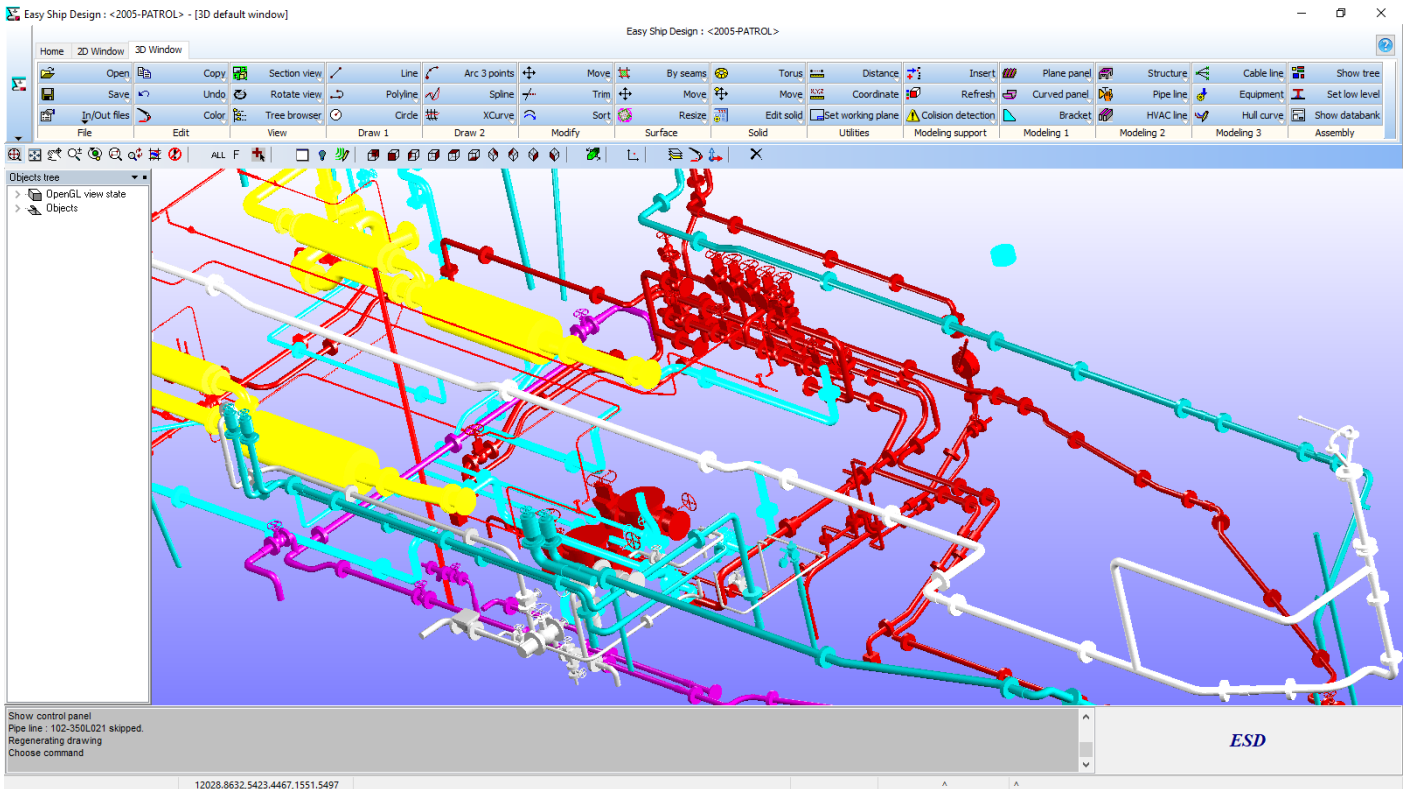
Preview of production 2D model parts (parts are created automatically from 3D model)



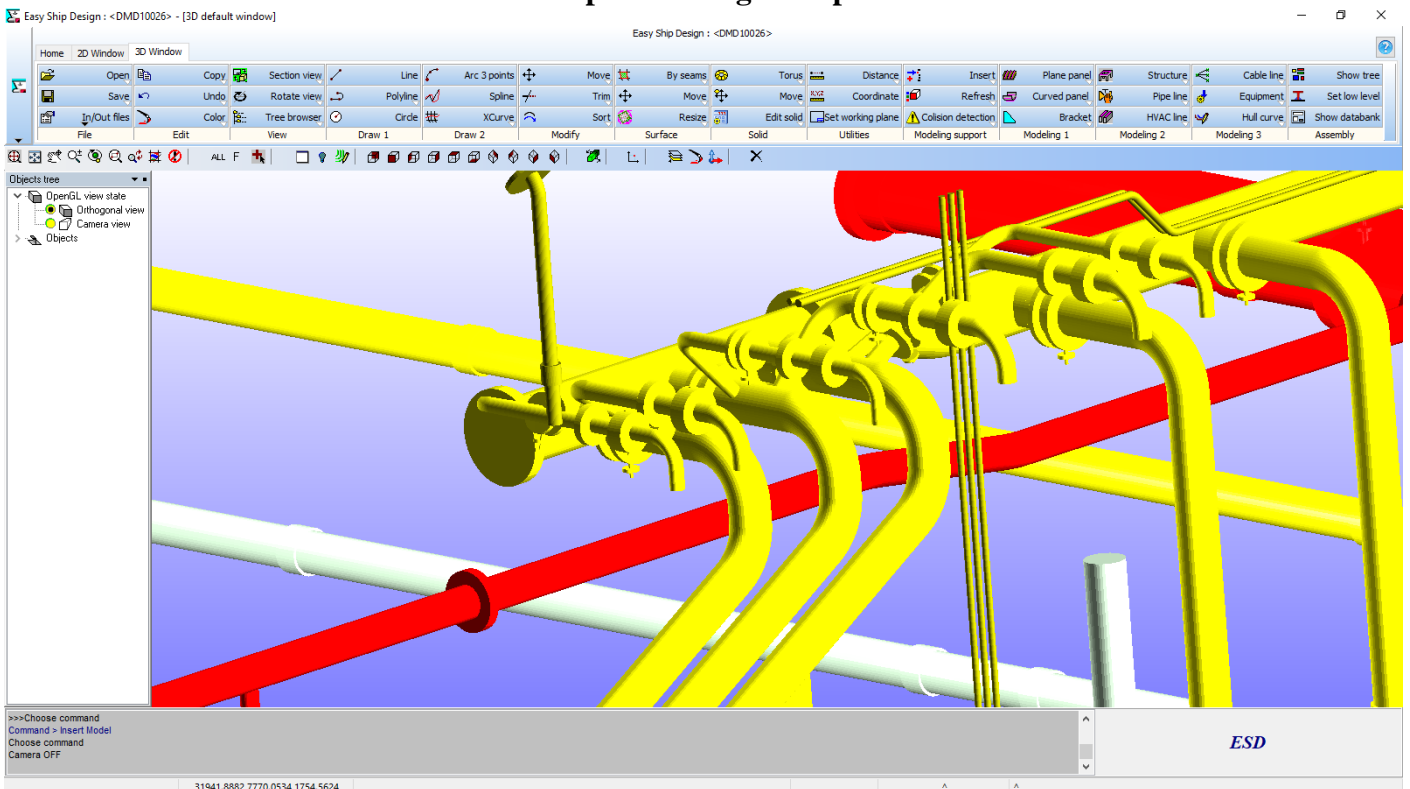
Profile sketch whit inverse bending curvature table (automatically created from 3D model)

1	ModuleName	PosNO	PartName	Type	Side	Material	Designation	Mass	COG.x	COG.y	COG.z	ArticleCode	Splittet status
2	S20	59	@PAN-FRAMEFR3-6-PLA-17	PLANE PLATE	OVERCL	A	TH7.00	609.055003	1653.5	0.032692	4193.521833		0 YES
3	S20	60	@PAN-FRAMEFR3-6-PLA-18	PLANE PLATE	OVERCL	A	TH10.00	432.217043	1655	-0.255154	3062.440597		0 YES
4	S20	480	@PAN-FRAMEFR3-6-STI-19	PLANE STIFFENER	OVERCL	A	FB60X12	39.425659	1690.418524	0	3320.783921		0 YES
5	S20	481	@PAN-FRAMEFR3-6-STI-20	PLANE STIFFENER	PS	A	HP80X6	6.600157	1706.728159	3732.237243	4132.341592		0 YES
6	S20	482	@PAN-FRAMEFR3-6-STI-21	PLANE STIFFENER	SB	A	HP80X6	6.6001	1706.728153	-3732.236171	4132.335889		0 YES
7	S20	56	@PAN-FRAMEFR9-7-PLA-17	PLANE PLATE	OVERCL	A	TH7.00	423.914939	4953.5	2187.680317	4000.213906		0 YES
8	S20	57	@PAN-FRAMEFR9-7-PLA-18	PLANE PLATE	OVERCL	A	TH10.00	704.609397	4955	-5.611629	2458.017643		0 YES
9	S20	58	@PAN-FRAMEFR9-7-PLA-21	PLANE PLATE	SB	A	TH7.00	339.219561	4953.5	-2861.977212	3968.136641		0 YES
10	S20	458	@PAN-FRAMEFR9-7-STI-25	PLANE STIFFENER	PS	A	FB60X10	5.880671	4919.806998	3976.459153	2866.213783		0 YES
11	S20	459	@PAN-FRAMEFR9-7-STI-28	PLANE STIFFENER	SB	A	FB60X10	5.880671	4919.806998	-3976.459103	2866.213782		0 YES
12	S20	460	@PAN-FRAMEFR9-7-STI-31	PLANE STIFFENER	PS	A	HP160X8	26.493209	5052.897774	4323.067455	3523.453381		0 YES
13	S20	461	@PAN-FRAMEFR9-7-STI-34	PLANE STIFFENER	PS	A	HP160X8	24.132458	5052.693083	3843.391493	3651.730772		0 YES
14	S20	462	@PAN-FRAMEFR9-7-STI-37	PLANE STIFFENER	PS	A	HP160X8	24.443871	5054.988099	3293.24842	3674.18125		0 YES
15	S20	463	@PAN-FRAMEFR9-7-STI-40	PLANE STIFFENER	PS	A	HP100X7	14.151687	5018.68072	1644.538035	3671.729		0 YES
16	S20	464	@PAN-FRAMEFR9-7-STI-43	PLANE STIFFENER	PS	A	HP100X7	12.747914	5017.817429	1094.601325	3645.896085		0 YES
17	S20	465	@PAN-FRAMEFR9-7-STI-50	PLANE STIFFENER	SB	A	HP160X8	24.132458	5052.693083	-3843.391493	3651.730772		0 YES
18	S20	466	@PAN-FRAMEFR9-7-STI-51	PLANE STIFFENER	SB	A	HP160X8	24.443871	5054.988099	-3293.24842	3674.18125		0 YES
19	S20	467	@PAN-FRAMEFR9-7-STI-52	PLANE STIFFENER	SB	A	HP100X7	14.151687	5018.68072	-1644.538035	3671.729		0 YES
20	S20	468	@PAN-FRAMEFR9-7-STI-53	PLANE STIFFENER	SB	A	HP100X7	13.277534	5018.680671	-1094.538039	3608.00175		0 YES
21	S20	469	@PAN-FRAMEFR9-7-STI-54	PLANE STIFFENER	SB	A	HP160X8	26.493209	5052.897774	-4323.067455	3523.453381		0 YES
22	S20	470	@PAN-FRAMEFR9-7-STI-55	PLANE STIFFENER	SB	A	HP100X7	12.84928	5016.919342	-544.665428	3701.7994		0 YES
23	S20	471	@PAN-FRAMEFR9-7-STI-61	PLANE STIFFENER	PS	A	FB60X12	8.421502	4919.430743	810.002054	2867.736068		0 YES
24	S20	472	@PAN-FRAMEFR9-7-STI-64	PLANE STIFFENER	SB	A	FB60X12	8.421502	4919.430743	-810.001246	2867.736068		0 YES
25	S20	473	@PAN-FRAMEFR9-7-STI-65	PLANE STIFFENER	PS	A	FB60X12	5.413412	4988.994724	2205	2863.2339		0 YES
26	S20	474	@PAN-FRAMEFR9-7-STI-68	PLANE STIFFENER	SB	A	FB60X12	5.413412	4988.994724	-2205	2863.233891		0 YES
27	S20	475	@PAN-FRAMEFR9-7-STI-69	PLANE STIFFENER	PS	A	HP100X7	7.490183	5016.024186	2200	4044.524051		0 YES
28	S20	476	@PAN-FRAMEFR9-7-STI-71	PLANE STIFFENER	SB	A	HP100X7	7.490183	5016.024186	-2200	4044.524051		0 YES
29	S20	477	@PAN-FRAMEFR9-7-STI-72	PLANE STIFFENER	OVERCL	A	HP80X6	5.254301	5005.095413	548.999634	4494.001415		0 YES
30	S20	478	@PAN-FRAMEFR9-7-STI-73	PLANE STIFFENER	PS	A	HP100X7	4.333578	5015.976418	2194.52603	4369.825029		0 YES
31	S20	479	@PAN-FRAMEFR9-7-STI-75	PLANE STIFFENER	SB	A	HP100X7	4.333578	5015.976418	-2194.52603	4369.825041		0 YES
32	S20	9	@PAN-LONGS-8-PLA-16	PLANE PLATE	OVERCL	A	TH10.00	120.726569	948.055669	0	4007.299559		0 YES
33	S20	422	@PAN-LONGS-8-STI-21	PLANE STIFFENER	OVERCL	A	FB60X10	3.107821	1250.836391	33.67029	3335		0 YES
34	S20	423	@PAN-LONGS-8-STI-22	PLANE STIFFENER	OVERCL	A	FB60X10	7.120355	825.086273	34.419622	4665.732214		0 YES
35	S20	424	@PAN-LONGS-8-STI-23	PLANE STIFFENER	OVERCL	A	FB60X10	6.085013	1555	35.243972	3994.115958		0 YES

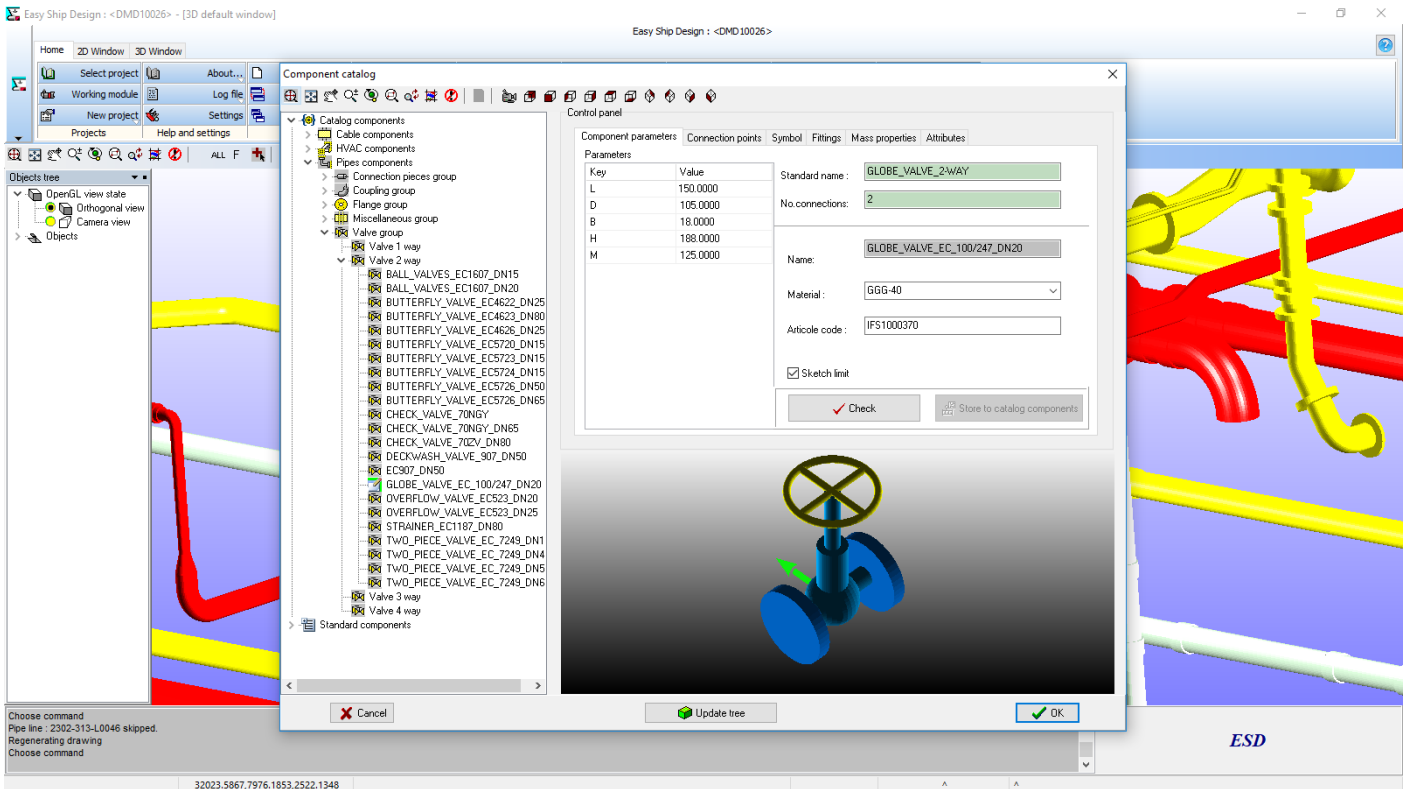
Part list example



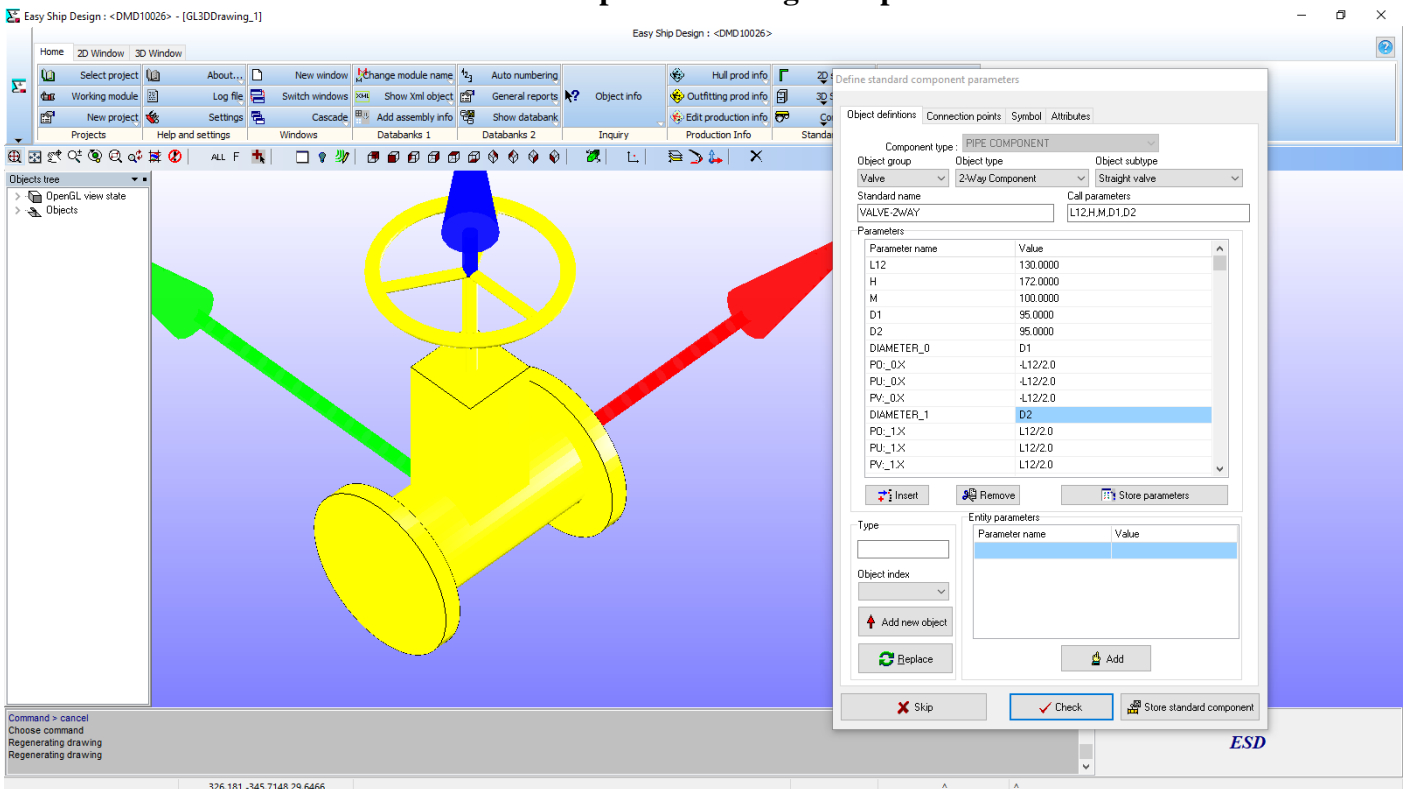
Pipe modeling example 1



Pipe modeling example 2



Component catalog example



Standard component definitions

The screenshot shows the Easy Ship Design software interface. The main window is titled "Easy Ship Design : <DMD10026> - [GL3DDrawing_1]". A "Specification" dialog box is open, showing a list of components under the heading "Coupling 2 way". The components include various Bulkhead, Double Sleeve, Elbow, Face, Reducer, and Single Sleeve connections with different diameters (DN). A green arrow points to the "Objects" area in the background.

Specification Dialog Box:

- Name: Spec1
- Title: spec1
- Save button
- Load button

Component List (Coupling 2 way):

- BULKHEAD(DOUBLE FLANGE_DN100)
- BULKHEAD(DOUBLE FLANGE_DN125)
- BULKHEAD(DOUBLE FLANGE_DN150)
- BULKHEAD(DOUBLE FLANGE_DN20)
- BULKHEAD(DOUBLE FLANGE_DN25)
- BULKHEAD(DOUBLE FLANGE_DN40)
- BULKHEAD(DOUBLE FLANGE_DN50)
- BULKHEAD(DOUBLE FLANGE_DN65)
- BULKHEAD(DOUBLE FLANGE_DN80)
- DOUBLE_SLEEVE(M12L_DN125)
- DOUBLE_SLEEVE(M12L_DN50)
- DOUBLE_SLEEVE(M12L_DN65)
- DOUBLE_SLEEVE(M12L_DN80)
- DOUBLE_SLEEVE(M22L_DN125)
- DOUBLE_SLEEVE(M22L_DN50)
- DOUBLE_SLEEVE(M22L_DN65)
- DOUBLE_SLEEVE(M22L_DN80)
- ELBOW_90R1.5D_DN250
- ELBOW_90R1.5D_DN125
- ELBOW_90R1.5D_DN150
- ELBOW_90R1D_DN150
- ELBOW_90R1D_DN250
- ELBOW_90R1D_DN65
- ELBOW_90R1D_DN80
- FACE_TO_FACE_EC5570_DN125
- FACE_TO_FACE_EC5570_DN150
- REDUCER_CONCENTRIC_DN125_DN65
- REDUCER_CONCENTRIC_DN25_DN20
- REDUCER_CONCENTRIC_DN65_DN25
- REDUCER_CONCENTRIC_DN65_DN40
- REDUCER_CONCENTRIC_DN65_DN50
- SINGLE_SLEEVE_CONNECTION_D101.6
- SINGLE_SLEEVE_CONNECTION_D193.5

Command line: Command > cancel
Choose command
Regenerating drawing
Regenerating drawing

ESD

Specification example

The screenshot shows the Easy Ship Design software interface in a 2D drawing mode. The main window is titled "Easy Ship Design : <DMD10026> - [GL2DDrawing]". The drawing area shows a 2D DXF drawing of a pipe spool with dimensions and annotations. The drawing is titled "2D DXF Drawing" and shows a pipe with a diameter of 100 and a length of 1000. The drawing is divided into sections and includes a table of components.

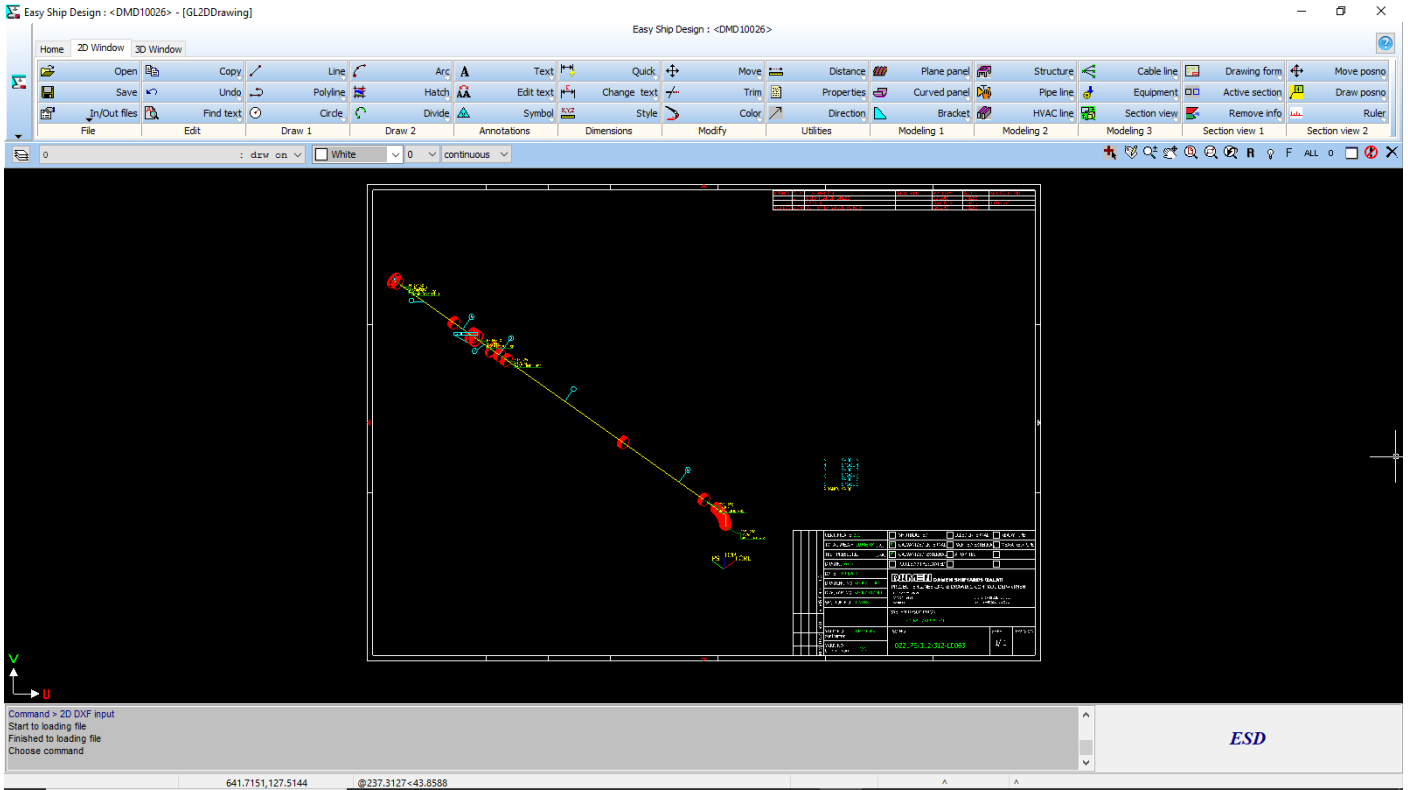
2D DXF Drawing:

- Dimensions: 1000, 100, 250, 750
- Annotations: 1, 2, 3, 4
- Table: A table with columns for Component Name, Quantity, and Material.

Command line: Command > 2D DXF input
Start to loading file
Finished to loading file
Choose command

ESD

Pipe spool example



Pipe line isometrics

S22_outfitting_report.csv - Microsoft Excel

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	
In	ModuleName	System	PosNO	PartName	Type	Side	M	D	De	Surface	Mass	Volume	COG.x	COG.y	COG.z	Assembly	Assembly	ArticleCo	Splitlet	st	Attribute	Attribute	Attribute
1	# S22	310	310-L0024	PIPE LINE	PS		0.432471	22.37463	0.004789	16937.37	3856.902	2470.642											YES
2	# S22	310	310-L0024-1	PIPE LINE	PS		0.326248	16.36201	0.003291	14949	3512.917	1921.388											YES
3	# S22	310	310-L0024-2	PIPE LINE	PS		0.331248	16.37294	0.003316	16937.16	3631.748	2503.645											YES
4	# S22	310	310-L0024-3	PIPE LINE	PS		0.320626	15.99054	0.003157	16937.15	4063.06	2680.833											YES
5	# S22	310	310-L0013	PIPE LINE	PS		0.484026	30.35896	0.006247	15231.08	3880.85	2230.65											YES
6	# S22	310	310-L0022	PIPE LINE	PS		0.432471	22.37463	0.004789	14949.37	3856.902	2470.642											YES
7	# S22	310	310-L0023	PIPE LINE	PS		0.367669	17.0032	0.005064	15943.37	3856.902	2720.072											YES
8	# S22	310	310-L0015	PIPE LINE	PS		0.494992	30.75915	0.006453	16640.14	3880.082	2241.135											YES
9	# S22	310	310-L0018	PIPE LINE	PS		0.172401	12.39182	0.003475	15920.37	3865.902	2557.441											YES
10	# S22	310	310-L0018-1	PIPE LINE	PS		0.091541	5.342	0.001312	15776.1	3856.938	2556.476											YES
11	# S22	310	310-L0018-3	PIPE LINE	PS		0.091541	5.342	0.001312	16064.64	3856.938	2557.523											YES
12	# S22	310	310-L0019	PIPE LINE	PS		0.463514	25.02024	0.010611	16544.93	4220.752	2559.096											YES
13	# S22	310	310-L0022-2	PIPE LINE	PS		0.331248	16.37294	0.003316	14949.16	3631.748	2503.645											YES
14	# S22	310	310-L023	PIPE LINE	PS		0.425881	20.4528	0.007211	15943.07	3607.391	2552.993											YES
15	# S22	310	310-L0013-1	PIPE LINE	PS		0.096019	7.462496	0.000943	15400.95	3765.288	2561.436											YES
16	# S22	310	310-L0015-1	PIPE LINE	PS		0.096019	7.462496	0.000943	16487.07	3765.288	2561.436											YES
17	# S22	310	310-L023-3	PIPE LINE	PS		0.045634	3.666678	0.000446	15400.95	3652.841	2554.341											YES
18	# S22	310	310-L023-4	PIPE LINE	PS		0.045421	3.6589	0.000442	16487.07	3653.245	2554.355											YES
19	# S22	310	310-L0022-3	PIPE LINE	PS		0.303766	13.39814	0.003079	14949.37	4062.532	2683.567											YES
20	# S22	310	310-L0027	PIPE LINE	PS		0.290497	14.22515	0.00391	15739.1	4083.831	2720.072											YES
21	# S22	310	310-L0027-1	PIPE LINE	PS		0.16777	12.27441	0.002065	16626.62	4067.059	2722.395											YES
22	# S22	310	310-L0023-2	PIPE LINE	PS		0.044083	3.369155	0.000401	15248.07	3856.902	2784.116											YES
23	# S22	310	310-L023-5	PIPE LINE	PS		0.106343	6.879737	0.000999	15256.51	3607.391	2639.968											YES
24	# S22	310	310-L023-6	PIPE LINE	PS		0.106343	6.879737	0.000999	15659.89	3607.391	2639.968											YES
25	# S22	310	310-L023-7	PIPE LINE	PS		0.106343	6.879737	0.000999	16233.28	3607.391	2639.968											YES
26	# S22	310	310-L023-8	PIPE LINE	PS		0.106343	6.879737	0.000999	16655.65	3607.391	2639.968											YES
27	# S22	310	310-L0013-2	PIPE LINE	PS		0.292423	17.79101	0.002905	15329.5	3856.902	2199.829											YES
28	# S22	310	310-L0015-2	PIPE LINE	PS		0.29082	17.7325	0.002875	16561.79	3856.902	2199.549											YES
29	# S22	310	310-L0014	PIPE LINE	PS		0.335822	17.9671	0.005201	15946.47	3856.902	1890.386											YES
30	# S22	310	310-L0014-3	PIPE LINE	PS		0.302533	15.7116	0.00302	15548.39	4131.843	1888.361											YES
31	# S22	310	310-L0014-4	PIPE LINE	PS		0.302533	15.7116	0.00302	15748.39	4131.843	1888.361											YES
32	# S22	310	310-L0014-5	PIPE LINE	PS		0.302533	15.7116	0.00302	15948.39	4131.802	1888.361											YES
33	# S22	310	310-L0014-6	PIPE LINE	PS		0.302533	15.7116	0.00302	16148.39	4131.843	1888.361											YES
34	# S22	310	310-L0014-7	PIPE LINE	PS		0.302533	15.7116	0.00302	16348.39	4131.843	1888.361											YES
35	# S22	310	310-L0014-8	PIPE LINE	PS		0.098229	6.341459	0.00082	15948.25	3856.902	1772.7											YES
36	# S22	310	310-L0013-6	PIPE LINE	PS		0.471841	25.7195	0.005815	15297.46	3499.822	2032.014											YES
37	# S22	310	310-L0015-3	PIPE LINE	PS		0.456213	25.14915	0.00552	16952.65	3503.253	2039.385											YES
38	# S22	310	310-L0002	PIPE LINE	PS		0.381491	10.5909	0.005199	15281.75	3442	1206.144											YES
39	# S22	310	310-L0007	PIPE LINE	PS		2.212627	119.5287	0.035799	14708.67	2303.267	1408.177											YES
40	# S22	310	310-L0027-1-1	PIPE LINE	PS		0.057593	3.8555	0.000603	16728.75	4083.751	2721.211											YES

Outfitting part list example



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