

DYNAFORM 5.9

Release Notes

Major improvements

1. Added the sheet forming optimization solution: INCSolver + SHERPA.
2. Added more streamlined and user-friendly draw bead solution.
3. Added more powerful Section cut function.

Newly Implemented Capabilities, Features and Functions in the BSE Module

1. Restored Batch BSE module.
2. Restored Batch MSTEP module.
3. In "Double Attach" function, the straight line is created from the Z axis view automatically without using "Select Reference Line".
4. Added to export the 3D trim line automatically to the IGES format in the current directory.
5. Added the sorting function for the nesting result.
6. "Calculate Addendum" works in the same way as "Calculate Bridge".
7. Provides batch and auto run BSE jobs tools.
8. Improved the plate nesting, supporting to give the best result with defined Length and Width.
9. Allows user to set default material for BSE.
10. Added an option in "Advanced", allowing the user to auto adjust elements normal.
11. Added an option in "Advanced", allowing the user to auto find constraint points.
12. Supported to develop outline on local coordinate system.
13. Supported the "Output Unit" option for the nesting report in the config file.
14. Supported the "file name" option for the nesting report in the config file.
15. Added the "Normal element angle function" in the "Check All" menu.
16. Do not open nesting result tree until we click the "+" button.
17. Improved the nesting algorithm about two pair nesting and multiple nesting.
18. Added new option to separately define decimal dimension and utilization.
19. Supported to use "Width" to do 3D Trim Line.
20. Added an option to tip 3D Trim Line at original position or tipped position.
21. Added the "export coordinate" button to return the press direction to the original position and output it with iges format.
22. Supported to output formability report with "xls" format.
23. Supported TWB(Tailor Welded Blank), including each part's "Yield Ratio"
 - a) New procedure in BSE preparation for TWB
 - b) Output formability report for each part
 - c) Add an option for "single layout type" or "Separate layout type" in the dynaform config for nesting report

Newly Implemented Capabilities, Features and Functions in DFE Module

1. Adopted the "Curve Editor" function to replace current smooth, morph and etc.
2. Added Redo and Undo for 2D Window.
3. Restored DFE Simulation with INCSolver.

Newly Enhanced Capabilities, Features and Functions Supporting AutoSetup in the Formability Module

1. Re-designed the draw bead GUI.
 - a) Ability to define drawbead by beam element.
 - b) Drawbead shape template for translation line bead force to bead shape.
 - c) Ability to define variable bead.
 - d) Ability to use Curve Editor to replace the curve editor in Draw Bead: Allows the user to offset selected 3D curve, and create curve by selected elements.
 - e) Ability to support symmetry line bead.
 - f) Ability to support variable geometry bead.
2. Added an option in Animate to show only the current stage tool.
3. In the case of symmetric part, it is desirable to have symmetric condition imposed on the segment design.
4. Adopted a more accurate approach to evaluate material formability – formability index.
5. If tools have been modified in preparation with the following changes, the program should auto position tools when exiting preparation.
6. If blank has been modified in Blank Generator, the program should auto position tools when exiting Blank Generator.
7. Added the display option in preparation tool list to display a tool by toggle on/off the option.
8. Changed the name of contact option from single surface to "Blank self-contact" in Blank.
9. Improved the function to define U, V and W axis in defining the working coordinate system.
10. Added an option in the config file, allowing the user to define the alternative name for each standard tool (die, punch and binder).
11. Changes in the FLC curve:
 - a) Recorded the data format (True strain or Engineering strain).
 - b) Set "Strain Type" as global option in FLC. Now it is in operation page.
 - c) When importing a FLD, give option to specify if it's engineering or true strain data.
12. Changed the tool control of binder from force to velocity.
13. Supported new trimming card in 2D/3D trimming.
14. Supported the definition of the adaptive box for mesh refinement.
15. Allows the user to define 2 parallel symmetry planes for the blank.
16. Added submenu "Save As" in AutoSetup.
17. Changed the default material type to 24 for solid blank.
18. Toggles off "Refining meshes" for solid blank mesh automatically.

19. Added optimization function with LS-OPT to optimize line bead, friction, binder force and blank outline.
20. Changes in Stretch Forming:
 - a) Removed both U and W axis translation options in blank positioning dialog box.
 - b) Changed the blank mesh normal in +Z direction to ensure that top and bottom strain results are correct.
 - c) Changed the bullnose mesh normal towards the blank to improve stability of simulation results.
 - d) Default machine kinematics for "transverse bullnose stretch forming" relaxation process stage only includes table stroke, without tension cylinder motions.
 - e) Implemented similar function to sheet forming motion control with closure gap for bulldozer stroke.
 - f) When a master tool velocity is chosen, Dynaform calculates and displays the slave velocity values for the user, not just 'grey out' the '10.0' default value.

New features for Blank Generator

1. For the circle blank outline, 'not create a node at the circle center' will not create sharp elements at the center.
2. Added Drag Mesh function to Blank tools in AutoSetup so you can create a solid element blank.
3. Re-designed Mesh method to support Drag Mesh.
4. Added the ability to direct link from BSE to AutoSetup taking blank part from outline result (and also bring across material and gauge).
5. Added a function in Blank Generator to link to BSE outline list. Added a button 'Copy from BSE'.
6. Added the ability to generate outer line and holes at once.

Additional Features and Functions for Job Submitter

1. Changed the message file extension from *.js to *.jsb.
2. Supported to specify the LS-DYNA solver license.
3. Added an option to open the result file (*.d3plot, *.dynain and *.fas) with eta/POST.
4. Supported to submit jobs to LS-DYNA/MPP solver.

Enhanced and Improved Pre-Processing Capabilities

1. New section cut function.
 - a) Added to move section by mouse on screen.
 - b) Supported to define cut plane with two points.
 - c) Enabled 2d and 3D section functionality Pre & Postprocessing for User-defined planes. Enabled parallel sections. Created curves of these sections. Keeps the original part color in the section.

- d) Supported to define section plane by coordinate system or three points.
 - e) Supported to cut multi-section when moving the section plane on the curve.
 - f) Supported to measure distance and angle in 2D window.
 - g) Saved the cut line in list.
 - h) Supported multi-cut for curve path.
2. Set the exponent M=8 for Aluminum & Stainless materials of *MAT_036.
 3. Supported to set a default material in the config file.
 4. Added a tool to generate log file, without installing Dynaform.
 5. Implemented optimization module with SHERPA and INCSolver for line bead, binder force, and blank outline:
 6. Supported to view the sheet forming optimization results.
 7. Changed the default distance value from 1 to 0 in translate of transformation.
 8. Functions in license manager:
 - a) Supported to import license, and combine license. Added a warning dialog box to import license.
 - b) Combined eta license server manager and LSTC license server manager into one server manager.
 - c) Supported to import license file and auto start the license server.
 9. Allows the user to erase the highlight in show surface with the clear highlight function.
 10. Added the "Edit Parts" function in tool preparation.
 11. Added to highlight selected part when modifying in Part menu and only show in color in the list those that are currently displayed.
 12. Allows the user to create the outer lines around a part with surface data excluding all the internal surface boundaries (for export to use in post for checking trim lines etc.)
 13. Enabled to display the element normal with an arrow when offsetting from mating tool.
 14. Allows the user to clear highlight in Mesh Check All.
 15. Added to show the part ID in the message window.
 16. Reduced the number of clicks when selecting part by part.
 17. Allow user to fillet new tool.
 18. Supported to select multi-parts when select surface by part.
 19. Enlarged the font size for the tab.
 20. Added the file extension associations with Dynaform product when installing. *.df is associated with Dynaform, *.d3plot and *.idx are associated with eta/POST, and *.e3d is associated with e3dplayer.

Newly Implemented Capabilities, Features and Function of Post-processing (eta/Post)

1. Added "mean curvature", "gauss curvature", "max principal curvature" and "min principle curvature" in Curvature function.
2. Added the "3 point gauge check" function, which is a face defect check tool similar to stone check.
3. Added the "Setting" function in "File" menu, which is the GUI of etapost.config.
4. Added STL file support.

5. Added the "exclude", "all in region" and "spread" options.
6. Added the "select by line" item, enable select a line to define the selection area.
7. Added the "define by screen point" option in define cut plane.
8. Added "define path by line" in section translation, which enables the user to select a line to define translation path.
9. Added frame list control in section cut animation.
10. Export section feature is linked to section animation record; the exported are sections in animation frames.
11. Removed "export cut section" from section cut dialog. Removed cut plane items from section cut options.
12. Added the "Enable default parameter" option in etapost.config file and linked it with FLD function.
13. If the value of enable default parameter is off and there is not FLD curve in index file, FLD function cannot be opened.
14. Improved the "Draw bead force factor" function to display variable factors.
15. Supported the keyword "*DRAWBEAD_VARIABLE_DF" in the index file.
16. Supported the keyword "*DRAW_DIRECTION" in the index file.
17. Updated stone check algorithm for non-continual areas.
18. Updated "Blank outline" algorithm to get better result.

Supported Version of LS-DYNA

1. Supported the latest LS-DYNA971R6.1.0.
2. There are two types of card formats in DF5.9: LS-DYNA971 R3.2 and R5+. This enables the user to set the version of the default solver in DF 5.9. The default card format is R5+. The method for changing the solver version is to select 'Option'/ 'Edit Default Config' and select 'Setup'/ 'General' in the opened dialog box to select the card format to be output.

Newly Implemented License Server Manager

1. Merged the DYNAFORM license server manager with LS-DYNA license server manager into a unified GUI.
2. Supported the client and server models. Under the client models, user can specify the network license. Under the server model, user can install, uninstall, start and stop the license server.
3. Supported the user to request a license.