INNOVATIONS
PEPS VERSION 8.2

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GENERAL FUNCTIONS AND CAD FUNCTIONALITY

"User ribbons" – with user-dependent storage.
We have a new option which allows you to store user-dependent "user ribbons". Depending on the current user, different ribbons are displayed.

New keyboard combinations for view switching
New keyboard combinations for view switching have been introduced. Additionally, the keyboard combination CTRL+E calls up the command Centralize all Drawing Data Within Drawing Area. The above-mentioned keyboard combinations can be integrated into the keyboard of 3D mice (e.g. space mouse).

CAD Workspace – “Delete” key deletes all items selected in the workspace
The “Delete” key deletes all items selected in the workspace.

Colored selection windows
The “internal” and “external” selection windows can optionally be displayed in color. Thus, the visibility of the selection windows will be increased in the case of dark background colors.

You can set the option in the dialog:
System Settings ► System Colours

“External” selection window – selects elements outside the graphics window
The “external” selection window now also selects elements which are outside the graphics window.
The shortcut “CTRL+A” selects all items in the graphics window. During a selection process in the graphics window, you can use the shortcut “CTRL+A” to select all existing geometry elements.

Context menu option for solids added “Hide all bodies except the selected one”
You can use this function to hide all solid bodies except the currently selected one with just one click. This function is also available in the workspace.

New 3D construction function: “Ruled Surface”
You can easily create a 3D ruled surface out of two curves and constraint lines.

The “Sweep” function has been optimized
The CAD function “Sweep” has been optimized; additionally, it shows warning signs if impossible geometries appear.
New option to retain original solids for boolean operations

This new option ensures that the original solid bodies which were used for a „boolean operation“ are not deleted. The following picture shows the result using this new option on the left-hand side and without the new option on the right-hand side.

You can set the option in the dialog: System Settings ► General.

“Fix Gaps” – new option
“Zoom to Gap”

Until now, it hasn’t always been easy to recognize smaller face gaps in more complex geometries. The new option “Zoom to Gap” extends the area around the face gap automatically and displays it as largely centred as possible.

Another new option “Invert Zoom” allows the display of the reverse side of the gap.
CAD DATA IMPORT

Update of the CAD interfaces
The following CAD interfaces have been updated:
- CatiaV5 – R26
- CatiaV6 – 2011X > 2013X
- INVENTOR – Version 2019
- JT – Version 10.2
- NX / Unigraphics – NX12
- ProE / CREO – CREO 4
- SolidWorks – Version 2019
- SolidEdge – ST10 and SolidEdge 2019

CAD import – new option “Simplify Body Geometry”
Until now, some CAD interfaces have divided full arcs into two halves. The new option “Simplify Body Geometry” leads to full circles.

The following figures show the effect of the option (without “Simplify Body Geometry” on the left-hand side, and with “Simplify Body Geometry” on the right):
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WIRE EDM

New cutting scheme database for all postprocessors
New database allowing an easy and comfortable management of cutting schemes.

Automatic allocation of cutting schemes whenever the postprocessor is switched
If the cutting scheme database is consistently used, the correct technology will be loaded automatically when the user switches from postprocessor "A" to postprocessor "B".
Measurement cycles
Optionally, measurement cycles are available for the postprocessors AC CUT X00, AC CUT EXX0, AC CUT PX0, Mitsubishi and Fanuc.

Support threading help (Threading Expert) for AC Vision
The postprocessor AC Vision supports the threading help function (Threading Expert).

G02 / G03 NC output for ruled surface machining
The postprocessor Mitsubishi now also supports the geometry output G02 / G03 for ruled surfaces.

Welding a slug for AC CUT EXX0/AC CUT PX0 machines
From version 8.2 onwards, the postprocessors AC CUT EXX0 and AC CUT PX0 support the function for welding slugs.

Improved Feature Recognition
During the “grouping” of features, the system will now check for colors, heights and hole diameters. Mirrored figures will no longer be grouped.

Automatic selection of identical geometries
If you enable the function – Search for identical geometries – and select one geometry, all geometries of the same name will be automatically selected.
In conjunction with the additional module - High Quality Random-Shape-Nesting –, series production parts can be programmed and produced in a very efficient way.

CONIC-Expert
The new additional module CONIC-Expert allows the machining of extremely conical ruled surfaces with a considerably higher geometrical accuracy. Geometric deviations, produced by different speeds of the machine movements between the lower and the upper geometry, are automatically compensated by the additional module CONIC-Expert.
GENERAL MILLING

Workspace – showing and hiding tool paths
It is now possible to easily show or hide individual or all tool paths via checkboxes.

New dialog for the “billet definition”
The dialog Billet Definition has been updated and expanded. The definition of allowances onto the billet has been significantly facilitated.

New “simulation” dialog for the positioning of the billet/workpiece on the machine table of the 3D simulation.
2.5D MILLING

Workspace – simulating 2.5D operations individually
From now on, 2.5D operations (pocketing, profiling and drilling etc.) can also be simulated individually via the Workspace.

Automatic selection of identical geometries
If you enable the function – Search for identical geometries – and select one geometry, all geometries of the same name will be automatically selected. In conjunction with the additional module – High Quality Random-Shape-Nesting –, series production parts can be programmed and produced in a very efficient way.
MILL-EXPERT

In the new version, it is optionally possible to move all produced drillings groups to the highest Z-position during an Automatic Feature Recognition.

Z-constant chamfer features are automatically recognized and machined.

In addition to the selection of bottom surfaces, a selection of wall surfaces has been added to the Manual Feature Recognition.
3D AND 5-AXES MILLING

New milling strategy “Turn Milling”
This strategy allows you to rough rotationally symmetric (e.g. turned parts) and not rotationally symmetric parts (e.g. crankshafts) with a milling tool. This strategy works in a similar way to a roughing cycle of a lathe; however, a cutter is used instead of a turning tool.

The following figures show the strategy used when machining a crankshaft: a rotationally symmetric solid is automatically created out of the not rotationally symmetric part.

New 5-axes milling strategy “Geodesic Machining”
Creates 5-axes tool paths with an equal path distance in all areas. This strategy can replace in many cases the selection of the right 5-axes operation strategy that has been necessary in the past. Additionally, the selection of boundary curves is often not necessary since the milling strategy recognizes them automatically.
New 5-axes milling strategy “Deburring”
This strategy allows a simple 5-axes deburring of the edges of a 3D model. A 3-axes deburring or the deburring with a tilted tool are also possible.

Completely blended connecting paths for 5-axes tool paths
A new option in the 5-axes Milling module ensures completely blended connecting paths when the tool moves from one milling area to the other.

3D and 5-axes milling strategies support barrel tools
The new version supports a wide variety of barrel tools. The use of barrel tools is particularly suitable for the machining of steep walls.

Barrel tools, in comparison to a ball cutter with the same diameter, allow a much larger step with the same surface quality. The advantages are significantly shorter machining times.

Dynamic Holder Control for 3D tool paths
From now on, the dynamic holder control is available for all 3D milling strategies.
Dynamic holder control with regard to the rest material for 3D roughing strategies

Due to a new option, collisions of the tool holder with the current rest material can be avoided. This is an expansion of the previous holder control which avoids collisions of the holder with the workpiece.

The following figure shows that the second and third roughing planes have largely not been created since the tool holder would collide with the rest material of the previous roughing plane.

Tool-/Tool Holder Control for collisions with clamping devices for 3D roughing strategies

This option monitors if there are any collisions with clamping devices during 3D roughing operations. If the system discovers any collisions with clamping devices, it automatically adjusts the tool paths.

Toolpath Overlapping – for 3D strategies “Constant in Z” and “Constant Cusp”

Allows an overlapping of the milling paths between the Lead on and Lead off position.

Blended Lead out for the strategy “High Speed Roughing”

The roughing cycles “2D High Speed Roughing” and “3D High Speed Roughing” have been expanded by a soft blended Lead out from the milling path.
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**Blended Lead out for the 3D roughing strategy “Offset Roughing”**

The roughing cycle 3D Offset Roughing has been expanded by an option allowing a blended lead out from the milling path.

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**3D roughing strategy “Parallel Roughing”**

**New function “Blend Toolpath corners”**

The 3D roughing strategy “Parallel Roughing” has been expanded by the function “Blend Toolpath”. The option blends the toolpaths corners.

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**“3D High Speed” strategies – new function “Expand rest area”**

For the “3D High Speed” strategies, the option Expand rest area has been added to the function Rest Finishing. The option allows the lateral expansion of rest material tool paths. The following figure shows an expanded tool path on the right-hand side.

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The figures above show the innovation on the right-hand side and the previous lead out behavior on the left-hand side.

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The figure above shows the expansion of the Rest Finishing dialog.
MILLING – TOOL PATH SIMULATION

The display quality of the simulation has been improved
The display quality of the material removal has been considerably improved in connection with ball cutters, lollipop cutters, form cutters and bullnose endmills.

The recalculation of the material removal quality has been optimized
The frequency of the automatic recalculation of the material removal has been significantly reduced which leads to an acceleration of the simulation.

Workpiece/billet simulation now displays clamping devices
A new button allows the display of clamping devices, now also within the workpiece/billet simulation.

New revised tool database
From Version 8.2 on, an updated version of the tool database is available.
TURNING

Solid simulation updated
The Solid simulation has been updated.

Milling with special tools
Milling operations can now be programmed and simulated using special tools.
HELP SYSTEM AND MANUALS

Module manuals have been integrated “online” into PEPS
The module manuals Wire EDM, Milling, 2D Cutting, 3D CAD and 2D CAD have been integrated into the system. The module manuals are called up “online” via the PEPS menu.

Milling help system adjusted to new 2.5D milling dialogs
The help system of the Milling module has been adjusted and describes the new 2.5D milling dialogs from Version 8.2 on.

5-Axes Simultaneous Surface Milling
A manual for the module “5-Axes Simultaneous Surface Milling” is available.