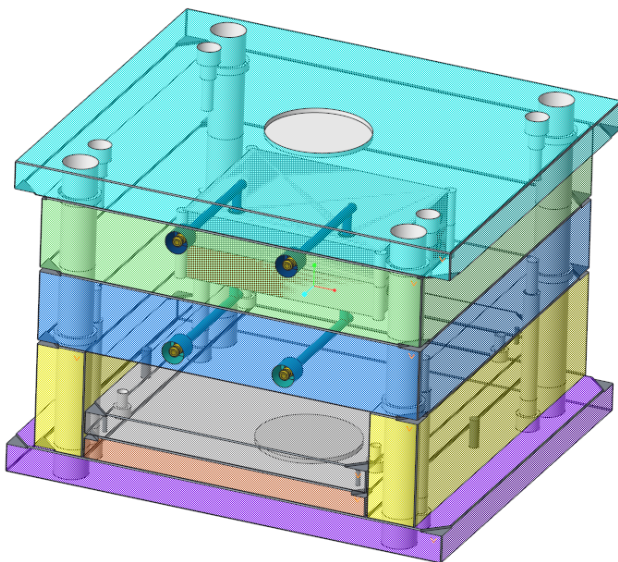# Today's EMX Agenda

**9.00 - 10.30:** EMX 9 Best Practices & new Features – Part 1

**10.30 - 10.45:** Coffee Break
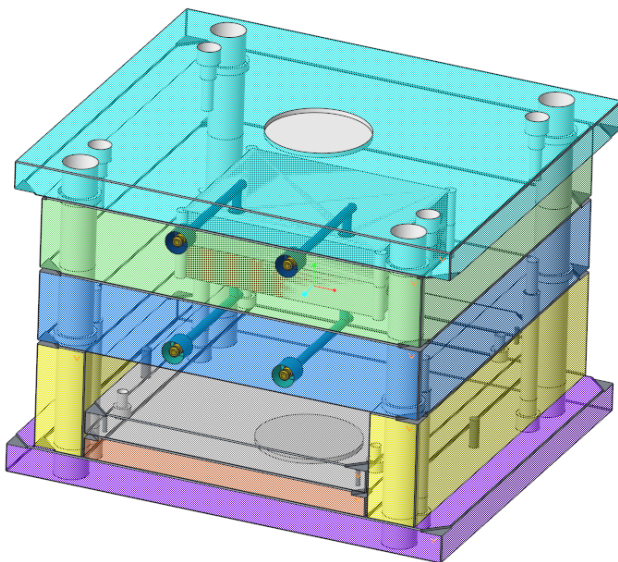
**10.45 - 12.15:** EMX 9 Best Practices & new Features – Part 2

**12.15 - 13.15:** Lunch Break

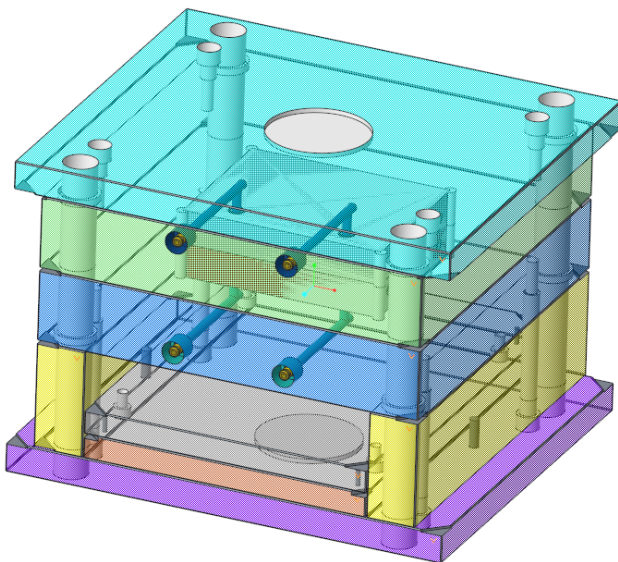**13.15 - 14.45:** EMX 9 Advanced Features EMX 10 Preview & Ideas

# EMX9 M010
# Best Practice & new Features

**Florin Tudose**

**Thomas Schneyer**

**Hannes Weber**

**Agenda**

**Best Practice**

- Classify and Multi Cavity Process
- Improved Handling of BOM Parameters
- New Part Names Configuration
- Working with Windchill

**New Features**

- The Mold Base Designer
- New EMX Options
- Handling Component Updates
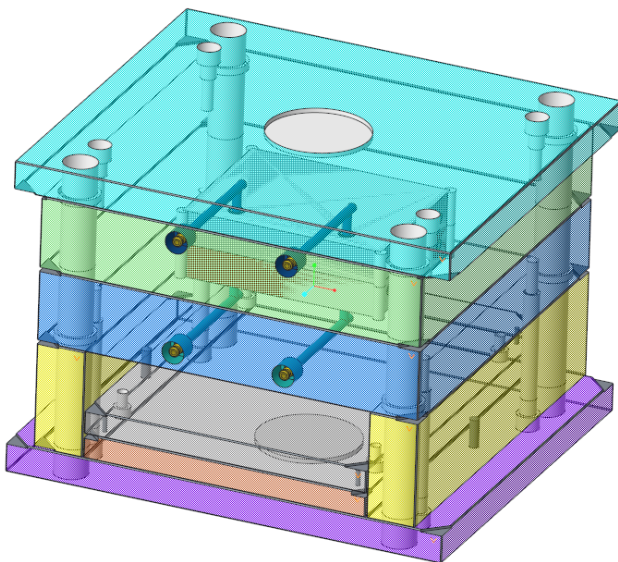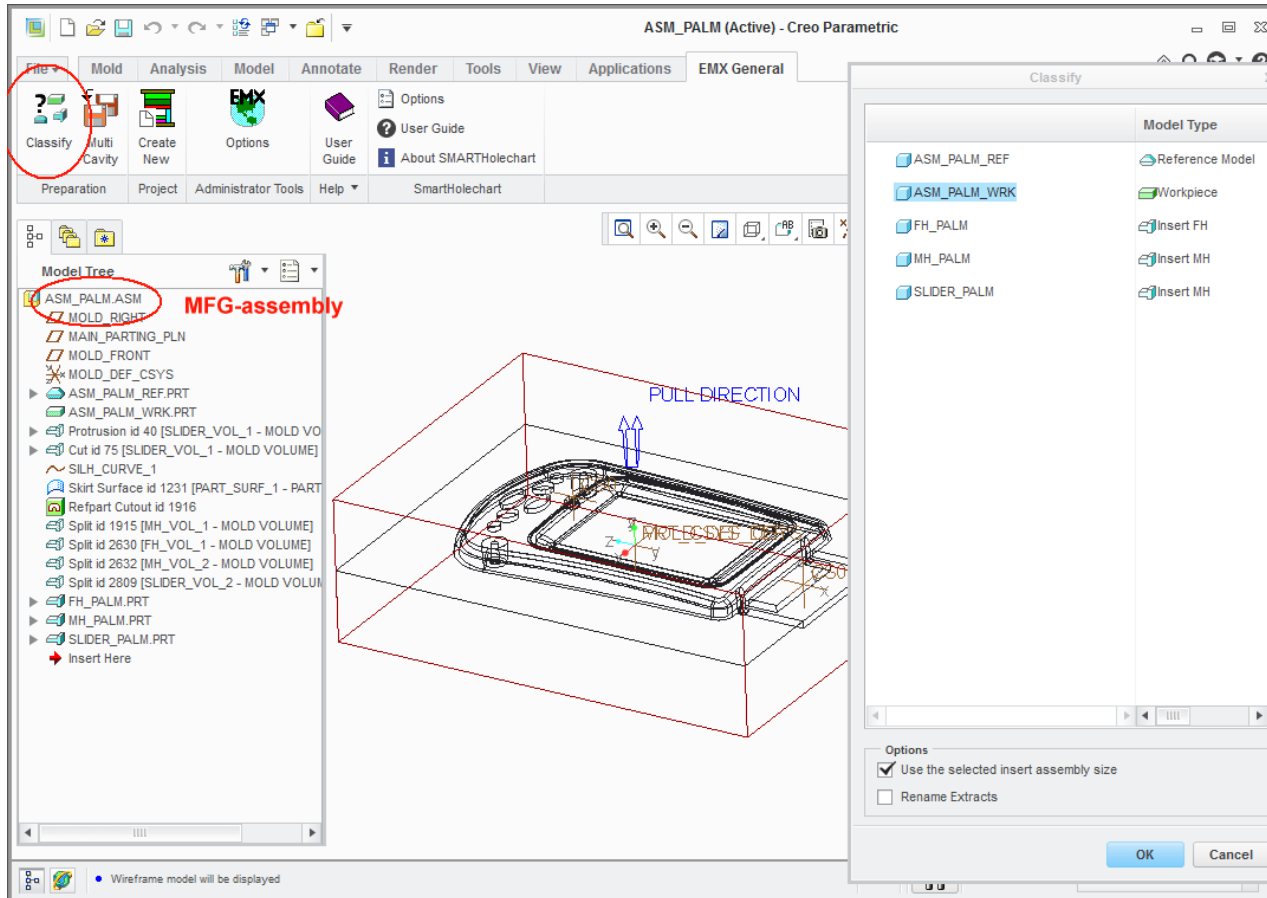- Ejector Pins Design in Part Mode
- QA Measures

# Agenda

**Best Practice**

- Classify and Multi Cavity Process
- Improved Handling of BOM Parameters
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# Change in the process: Classifying



In the past many users have used the classifying of the project to put components to the fix-moving half. This is not the correct way to do it.

From now on, Classify can be used on the Core-/Cavity insert assembly (MFG) BEFORE creating the EMX project. This avoids the problem mentioned before.

# Change in the process: Multi Cavity - 1
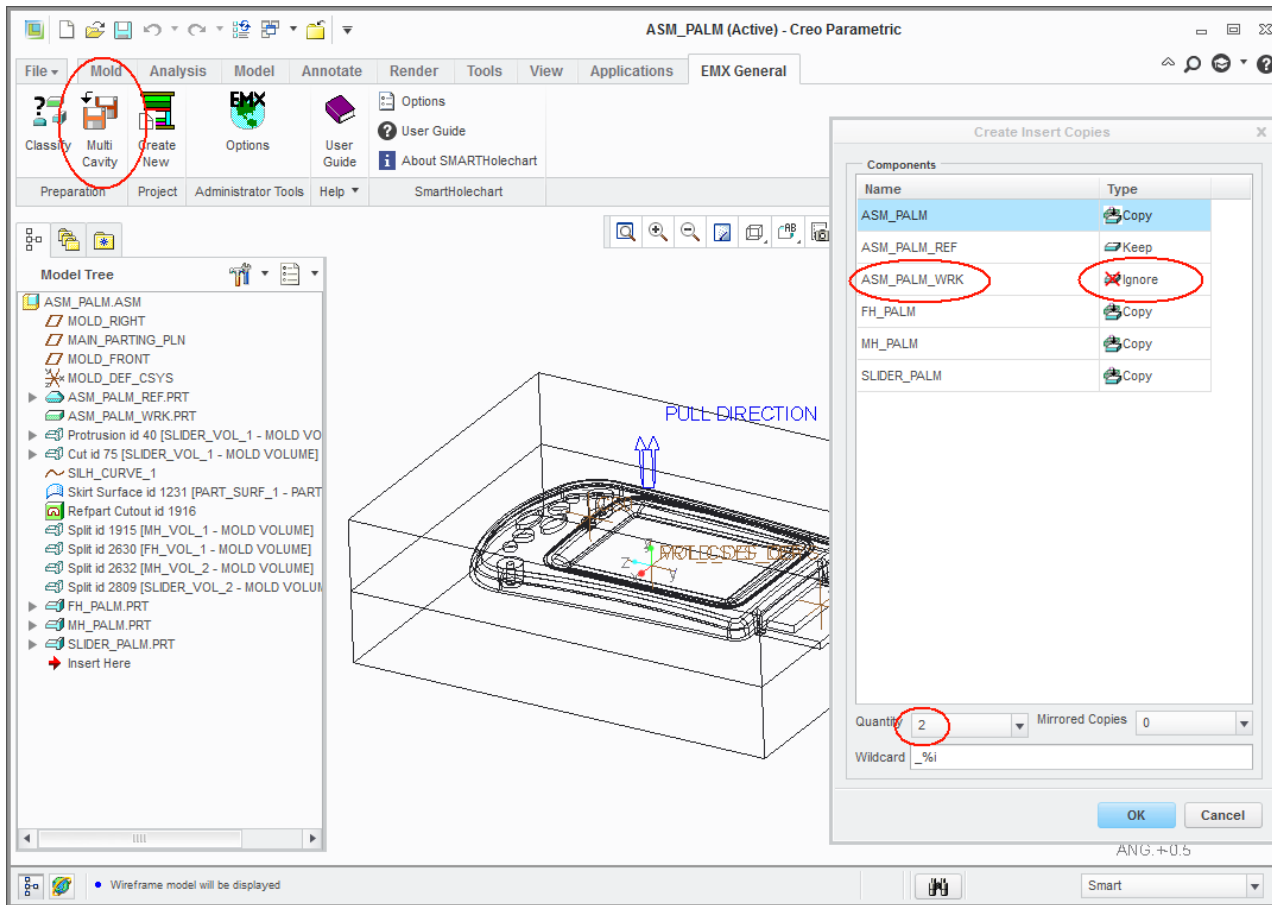


Even when create a single cavity mold, we recommend to create a copy of the original Core´/ Cavity insert with the Multi Cavity function.

- **Advantages are: Work piece is eliminated**
- **The assembly copy has simplified features, so regeneration time is reduced**
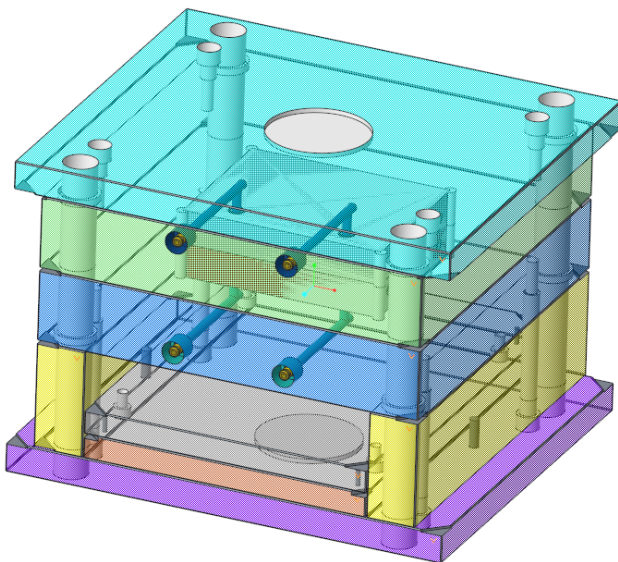- **Using EMX cannot corrupt the MFG-assembly**

# Change in the process: Multi Cavity - 2



**Copies of the Insert models are added to the insert-assembly**

**The copied assemblies have only Copy Geom features included**
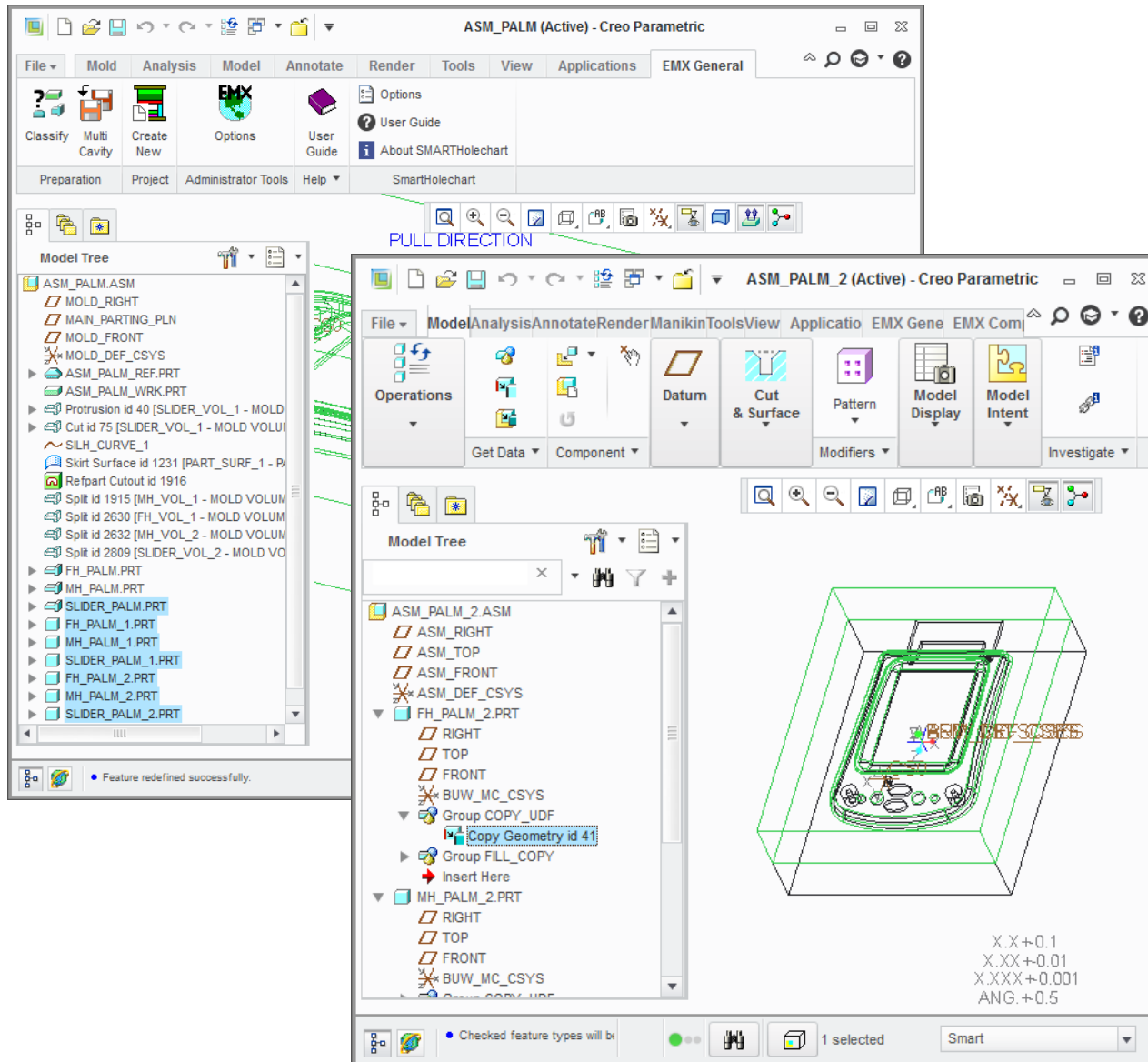
# Agenda

**Best Practice**

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# Improved handling of BOM Parameters - 1

When adding a plate, component, library part each dialog box has a „Parameter"-sheet. Until now, user input for this parameter-values in the dialog boxes had not been considered properly.

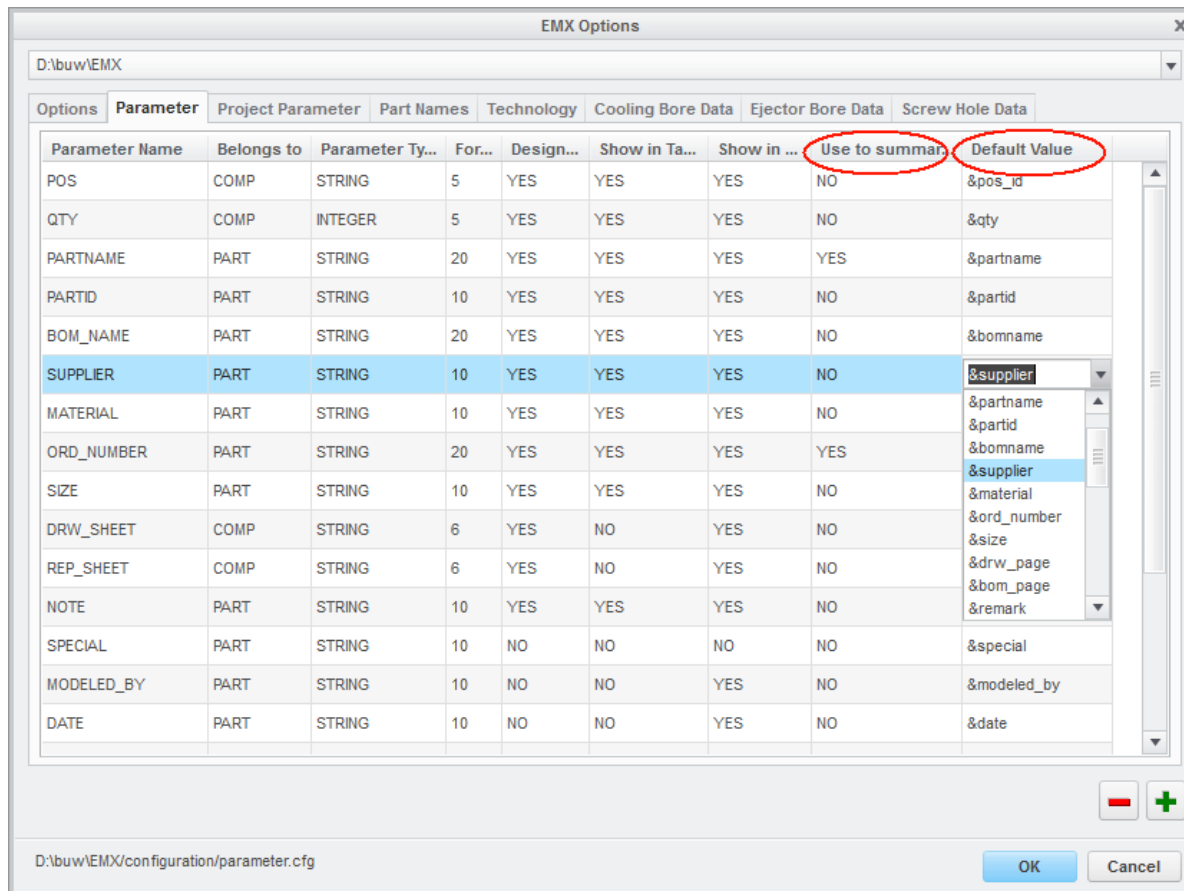→ customers have not trust the BOM at all and still use EXCEL for their BOM

We like to „force" users to use EMX BOM more often so they benefit from the nice functionality. The following steps should be part of each training.

See the following pages for the major steps.

# Improved handling of BOM Parameters - 2

STEP 1: The admin must define the EMX Options → Parameters carefully. The meaning of the Rule („Default Value") in the last column and the „Use to summarize"- column must be explained!

# Improved handling of BOM Parameters - 3

**STEP 2: When defining a plate, component etc. … users should understand the meaning of the „Locked"-symbol in the dialog boxes.**

# Improved handling of BOM Parameters - 4

**STEP 3: Finish the content of the entire BOM in the BOM dialog box. Edit values by double click … or right click and „Edit BOM parameters"-function.**

## Agenda

**Best Practice**

- Classify and Multi Cavity Process
- Improved Handling of BOM Parameters
- New Part Names Configuration
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**New Features**

- The Mold Base Designer
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- QA Measures

# New Part Names Configuration

If the default part name for a component has the wildcard <xid> included, each model will get a new name (i.e. ADAPTER_001, ADAPTER_002 etc.). Even the models have identical geometry.

Avoid this by new part names with <instance>-wildcard!

# Agenda

**Best Practice**

- Classify and Multi Cavity Process
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- The Mold Base Designer
- New EMX Options
- Handling Component Updates
- Ejector Pins Design in Part Mode
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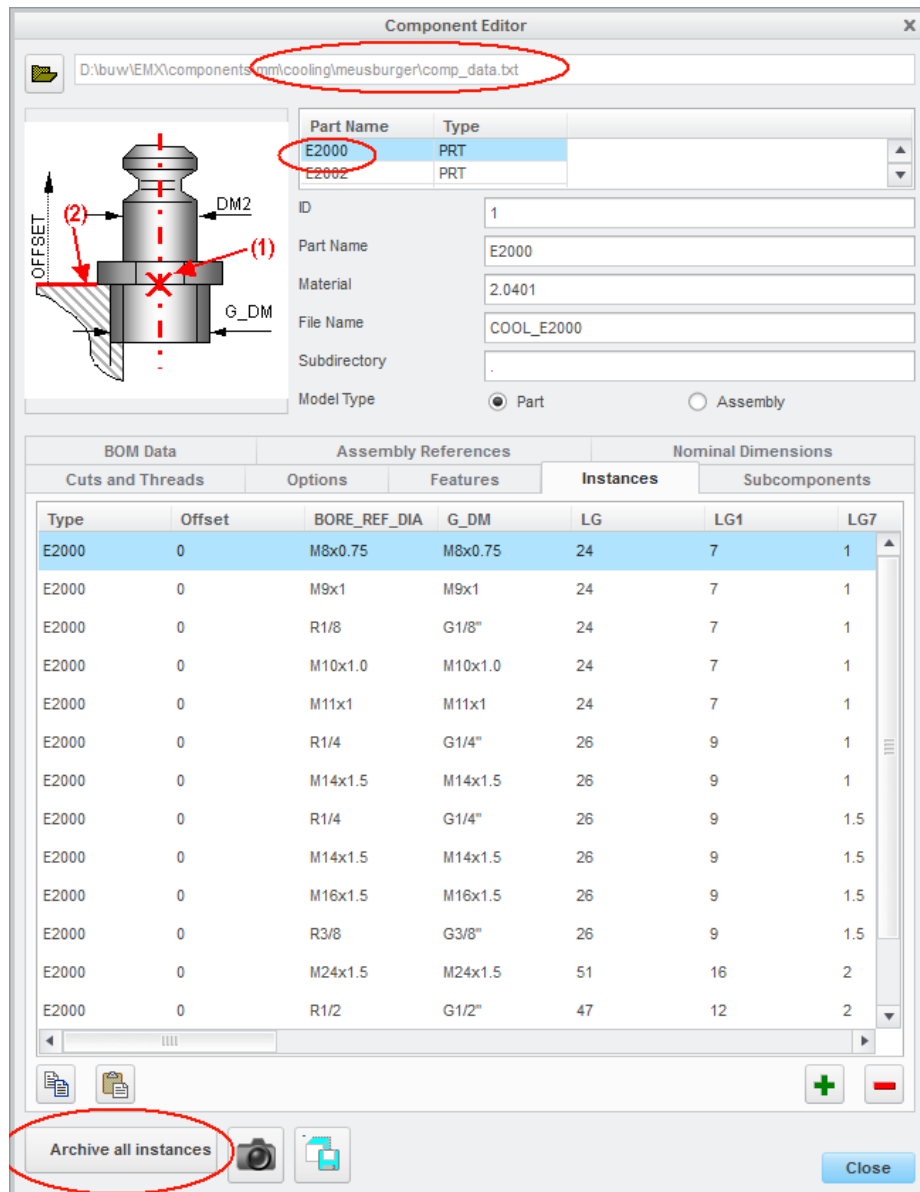
**STEP1**

**Create all instances of the standard-parts with the Component Editor:**

**Open a comp_data-file, select the desired component, press „Archive all instances"**

**This instances models (with correct parameters, dimensions, material) will be written to the ARCHIVE_PATH defined in EMX Options.**

**Then add this parts to the Windchill Commonspace manually.**
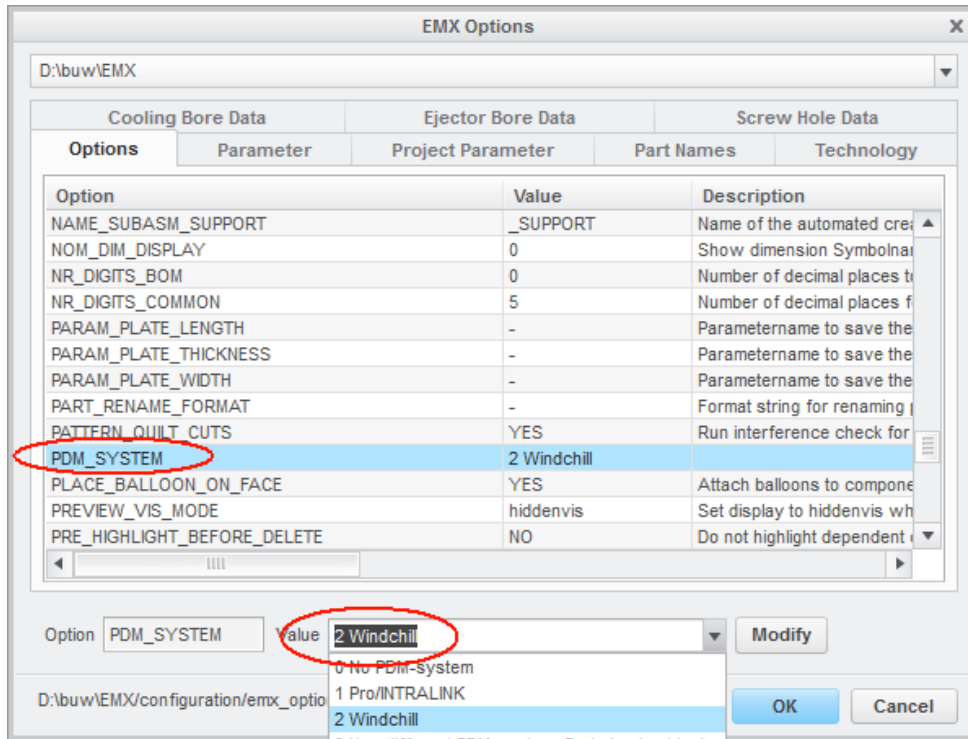
**STEP2**

**Set Option PDM_SYSTEM = 2**
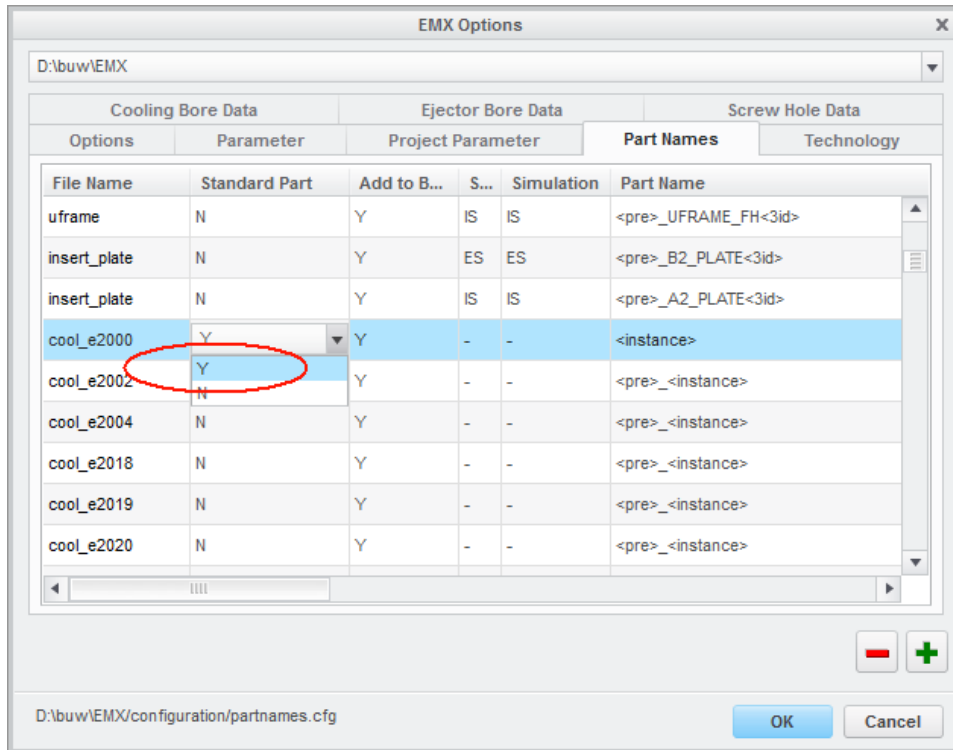
**STEP3**

Set the value for „Standard Part" in Part Names-Configuration to „Y".

(When doing so, EMX will search for the component in the commonspace and do not modify dims or parameters when assemble this part!)

# Agenda

**Best Practice**

- Classify and Multi Cavity Process

- Improved Handling of BOM Parameters

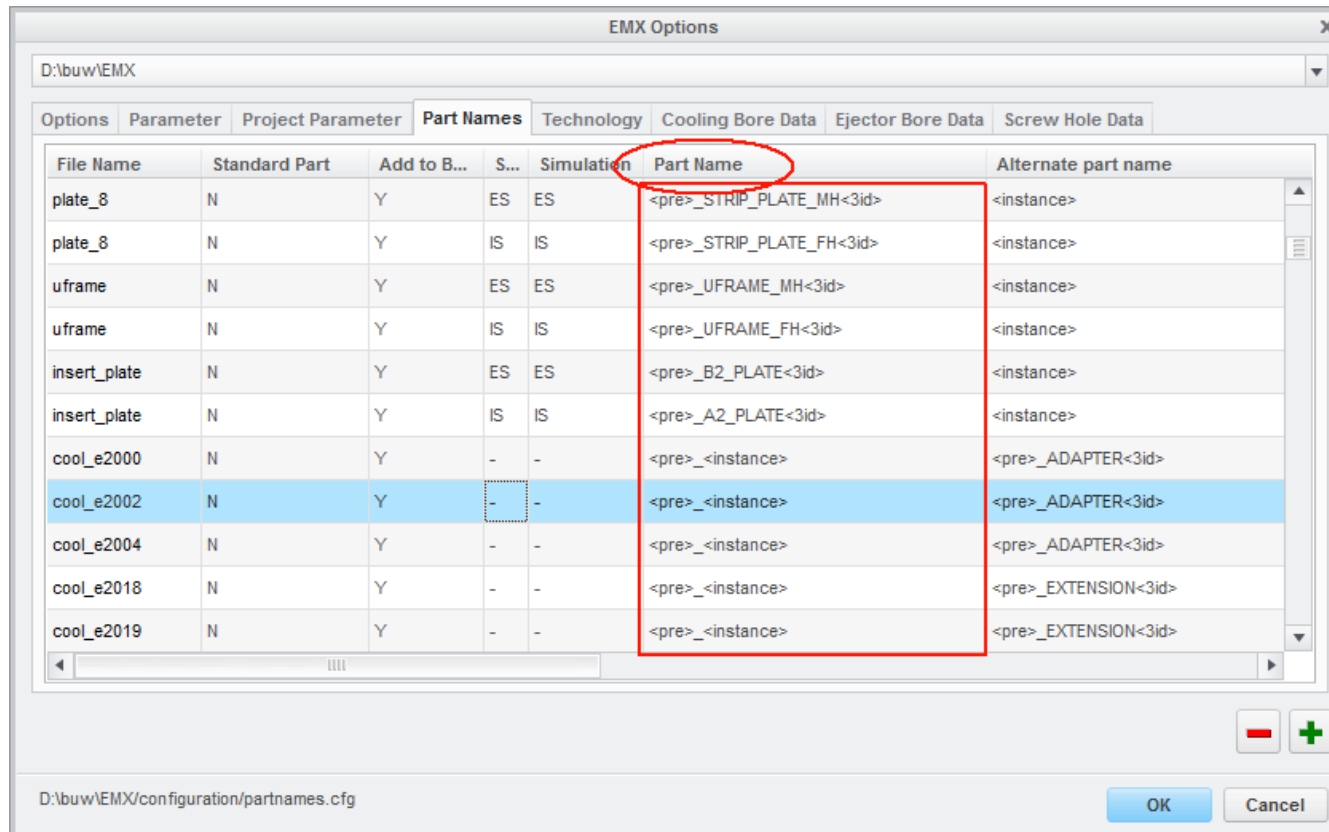- New Part Names Configuration

- Working with Windchill

**New Features**

- The Mold Base Designer

- New EMX Options

- Handling Component Updates

- Ejector Pins Design in Part Mode

- QA Measures

## Why Redesign?

- **User Experience needs to be improved.**

- **Information is displayed insufficiently.**

- **Pushbuttons are not positioned clearly.**

## What is new?

- Plates are display in predefined colors
- Color are defined in "technology.cfg"
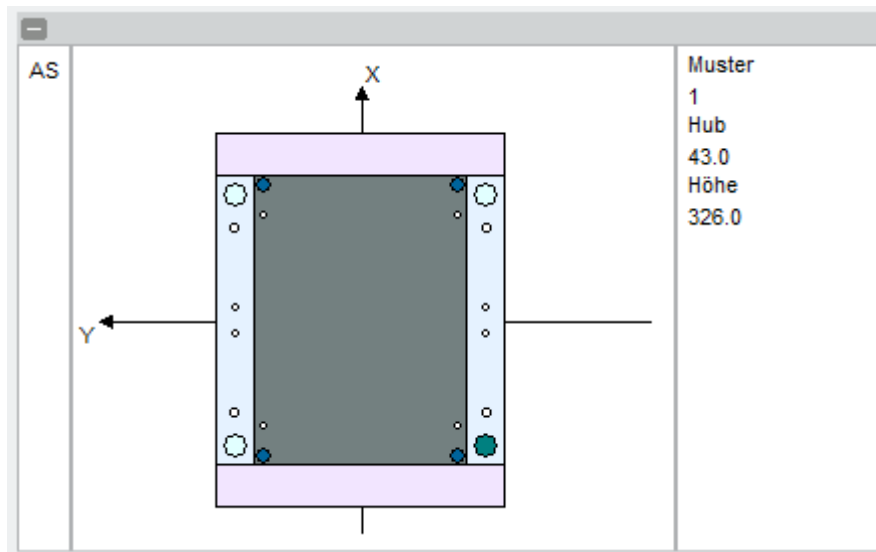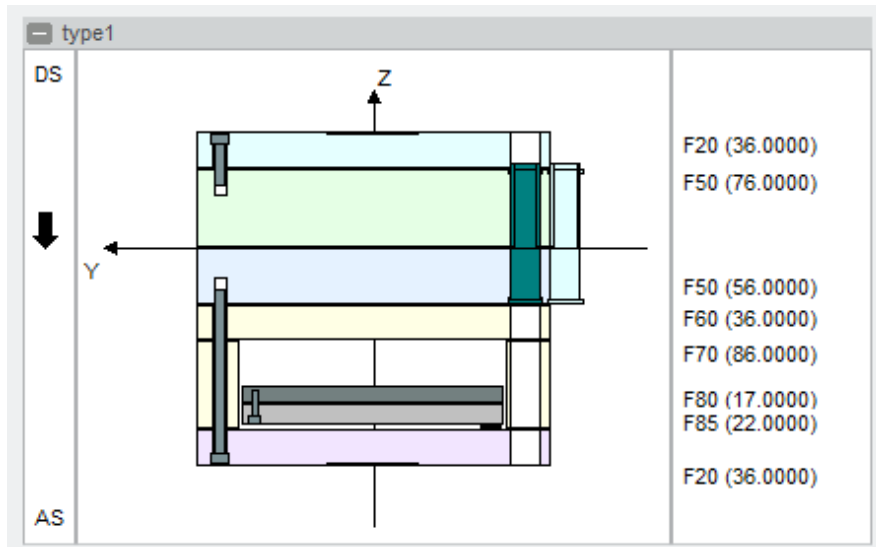
→ **Improved orientation**

# New Mold Base Designer - 3
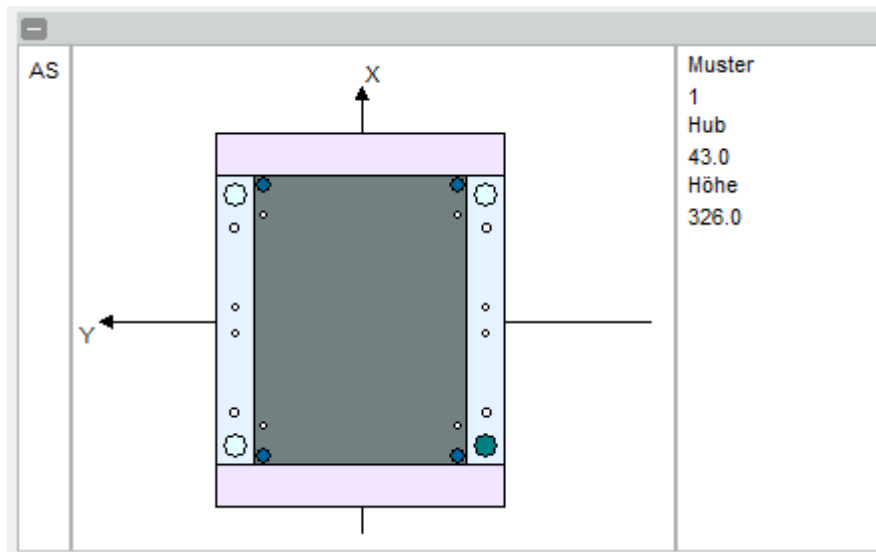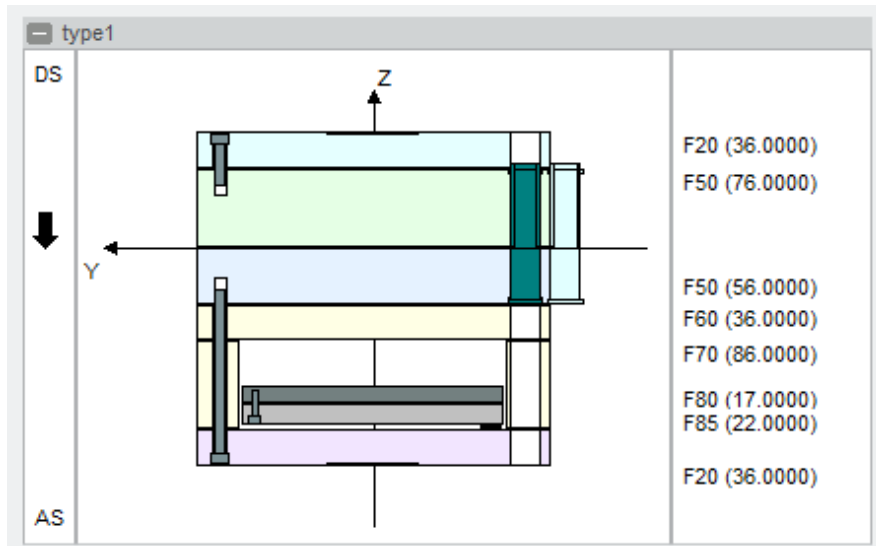


## What is new?

- **Information is displayed on clear positions**

- **Plate type and thickness**
  - **Clear order**
  - **Minimal distance while zooming**

- **View direction and side info separated from mold view**

→ **No more repainted Texts**
→ **Better overview anytime**

# New Mold Base Designer - 4
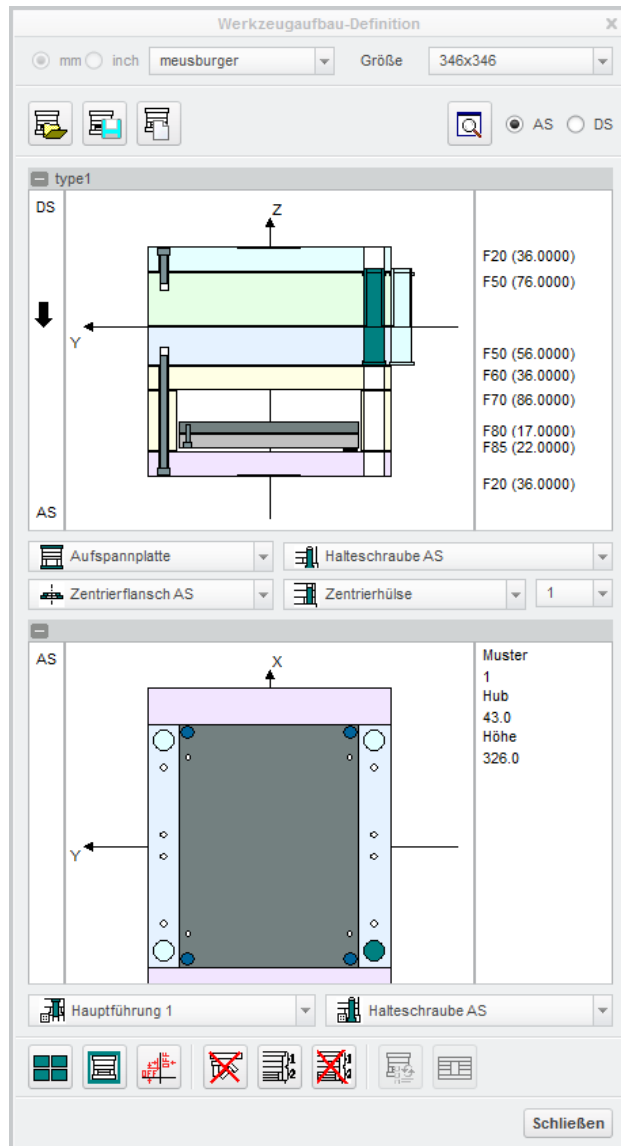


## What is new?

- Improved Drawing areas
- Zooming and Moving without Flickering

→ No more annoying distractions

→ Stay focused on work
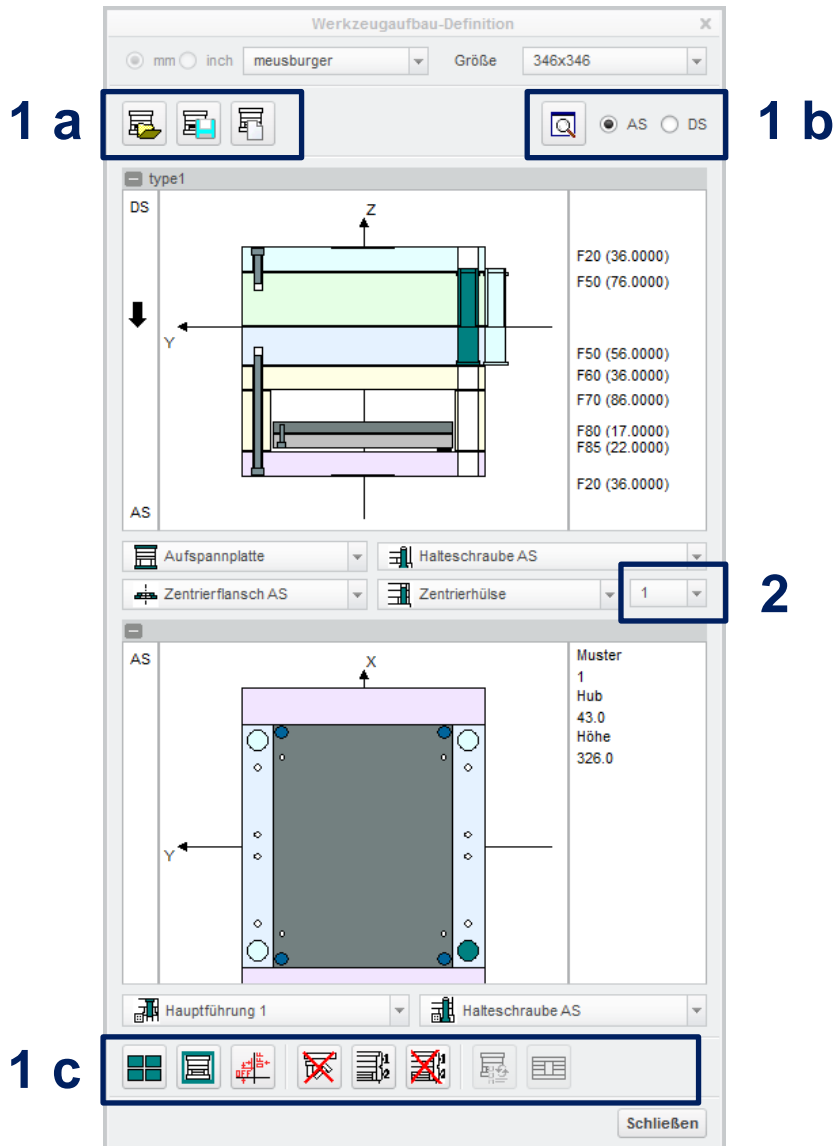
**What is new?**

1. **Restructuring of Pushbuttons in context**

   a. Load, Save, Erase Mold Base - Buttons

   b. 2D View management – Buttons

   c. Mold Base Design Buttons

2. „Active Pattern" right next to „Guides" Pull-down

→ **Easy to use**

→ **Better workflow**

## Conclusion

→ **Rounds up the central Dialog of EMX**

→ **Customers benefits from improved environment he works with all day**

**Let's have a look at the result**

# Agenda

## Best Practice

- Classify and Multi Cavity Process
- Improved Handling of BOM Parameters
- New Part Names Configuration
- Working with Windchill

## New Features

- The Mold Base Designer
- New EMX Options
- Handling Component Updates
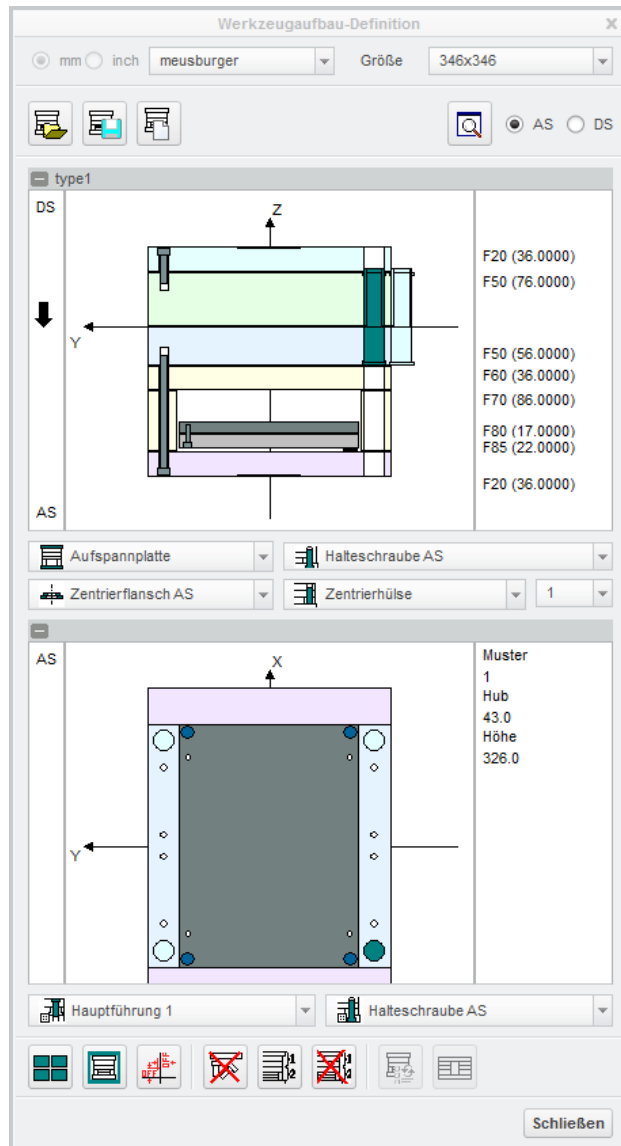- Ejector Pins Design in Part Mode
- QA Measures

# New EMX options

1. **CHECK_DWG_WHEN_OPEN_BOM** checks if drawings for the BOM Models are present
2. **DEFAULT_EMXNAME, DEFAULT_PREFIX** useful to predefine name and prefix for project
3. **DEFAULT_WATERLINE_...** Options are used for the Waterline Designer
4. **EJP_NOTE_POST_STRING and EJP_NOTE_PRE_STRING** extend the &remark parameter
5. **EMX_CHECK_DWG_TYPES** allows creating only the drawings only for the needed parts
6. **EMX_HIDE_ASSEMBLIES_IN_BOM** set on yes moves all subassemblies on hidden list
7. **ENABLE_NON_CATALOG_PLATES** handles the case of using a non catalog plate
8. **EXCL_SIZE_CALC_PARAM** skips recalculation of size parameter for standard parts
9. **NR_DIGITS_BOM** is used to calculate SIZE parameter and allows the value 0
10. **LIBRARY_THUMB_SIZE** allows to set the size of the generated library part thumbnails
11. **PATTERN_QUILT_CUTS** handles the way the cuts are created for patterned components
12. **QUICK_PROMPT** allows the user decide if selection of references should happen in loop
13. **SHOW_PRYSLOT** main switch to toggle the assembling of the pryslots on and off
14. **TEST_MODE** new debug functionality – useful when encountering bugs or crashes
15. **USE_ASM_WATERLINE_MDL** allows creating two models for ES and IS of the waterline
16. **USE_P_PLATE_STACK** must be used carefully because cuts dims from *_bore.cfg files

# New EMX options - CHECK_DWG_WHEN_OPEN_BOM

**1. CHECK_DWG_WHEN_OPEN_BOM checks if drawings for the BOM Models are present**



**Note: On large assemblies the BOM Dialog will take longer to open when this option is set to yes**

# New EMX options

## 2. DEFAULT_EMXNAME, DEFAULT_PREFIX useful to predefine name and prefix for project

| | | |
|---|---|---|
| DEFAULT_EMXNAME | 123 | Default for the EMX Projectname |
| DEFAULT_PREFIX | 123 | Default for the Project Prefix |
| DEFAULT_POSTFIX | 456 | Default for the project postfix. Enter - to hide the input panel for the postfix |

# New EMX options

**3. DEFAULT_WATERLINE_...** **Options are used for the Waterline Designer**

      1. DEFAULT_WATERLINE_COMPONENT = mm|meusburger|E2074_8_10
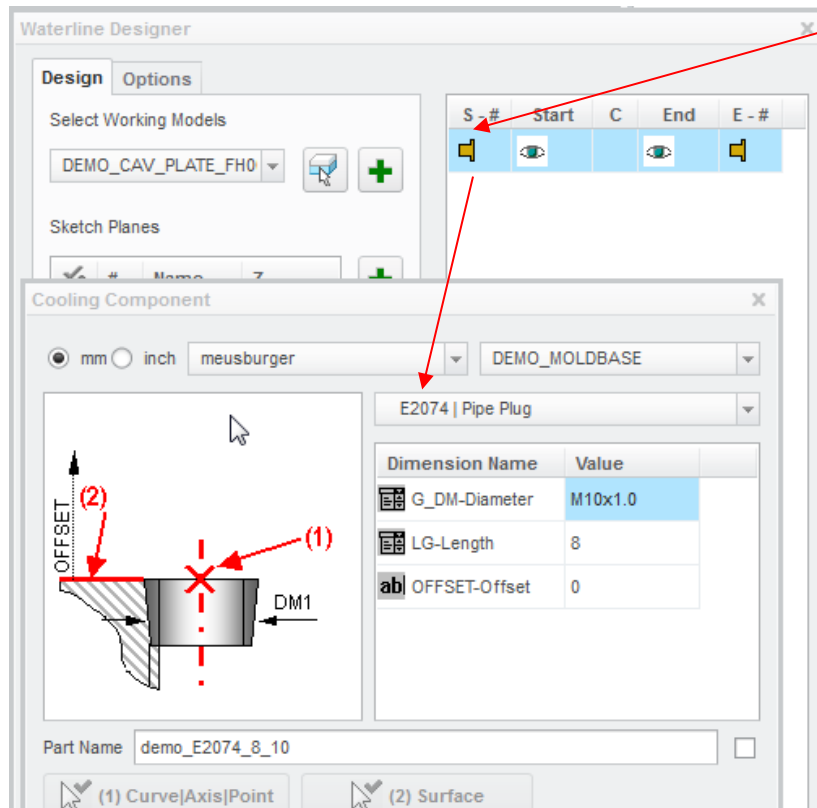


2. DEFAULT_WATERLINE_OVERMEASURE = 2
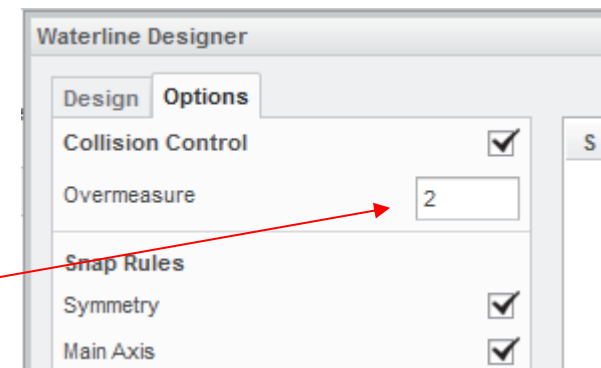
# New EMX options

## 4. EJP_NOTE_POST_STRING and EJP_NOTE_PRE_STRING extend the &remark parameter

| EJP_NOTE_PRE_STRING | ejp_pre | Text to be added before the real ejector pin length in the &remark-parameter |
|---|---|---|
| EJP_NOTE_POST_STRING | ejp_post | Text to be added after the real ejector pin length in the &remark-parameter |

**Bill of Materials**

| E... | V... | MODELL | POS | Q... | .. | P... | (V)... | SUPPLIER | MAT... | (V) ORD_NUMBER | SIZE | NOTE | LIST_EXAMPLE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 👁 | DEMO_EJBASE_PLATE_MH001 | 16 | 1 | ... | 01 | Ejec... | Meusburger | 1730 | F85/596x596x36-1... | 596x438x36 | | AB-123 |
| | 👁 | DEMO_EJECTOR_PIN010 | 17 | 1 | ... | 410 | Ejec... | Meusburger | 1.2210 | E1700/2,5x160 | Ø6x158 | ejp_pre 158.0000 ejp_post | AB-123 |
| | 👁 | DEMO_EJRET_PLATE_MH001 | 18 | 1 | ... | 01 | Ejec... | Meusburger | 1730 | F80/596x596x27-1... | 596x438x27 | | AB-123 |

# New EMX options

**5. EMX_CHECK_DWG_TYPES** **allows creating only the drawings only for the needed parts**
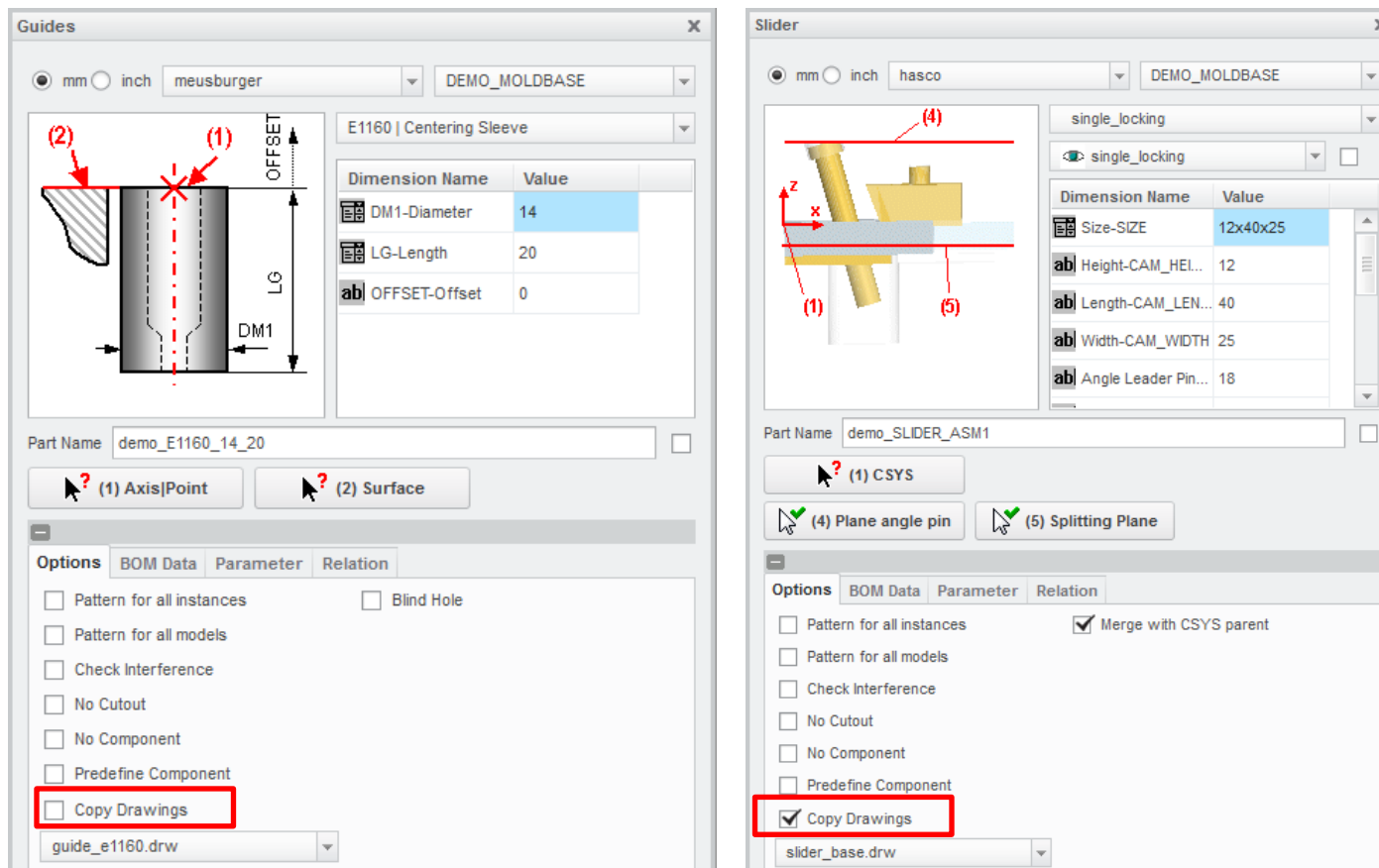


Note: If the drawing is present the check will be set

# New EMX options

**6. EMX_HIDE_ASSEMBLIES_IN_BOM** set on yes moves all subassemblies on hidden list

# New EMX options

**7. ENABLE_NON_CATALOG_PLATES** handles the case of using a non catalog plate

# New EMX options

**8. EXCL_SIZE_CALC_PARAM** skips recalculation of size parameter for standard parts
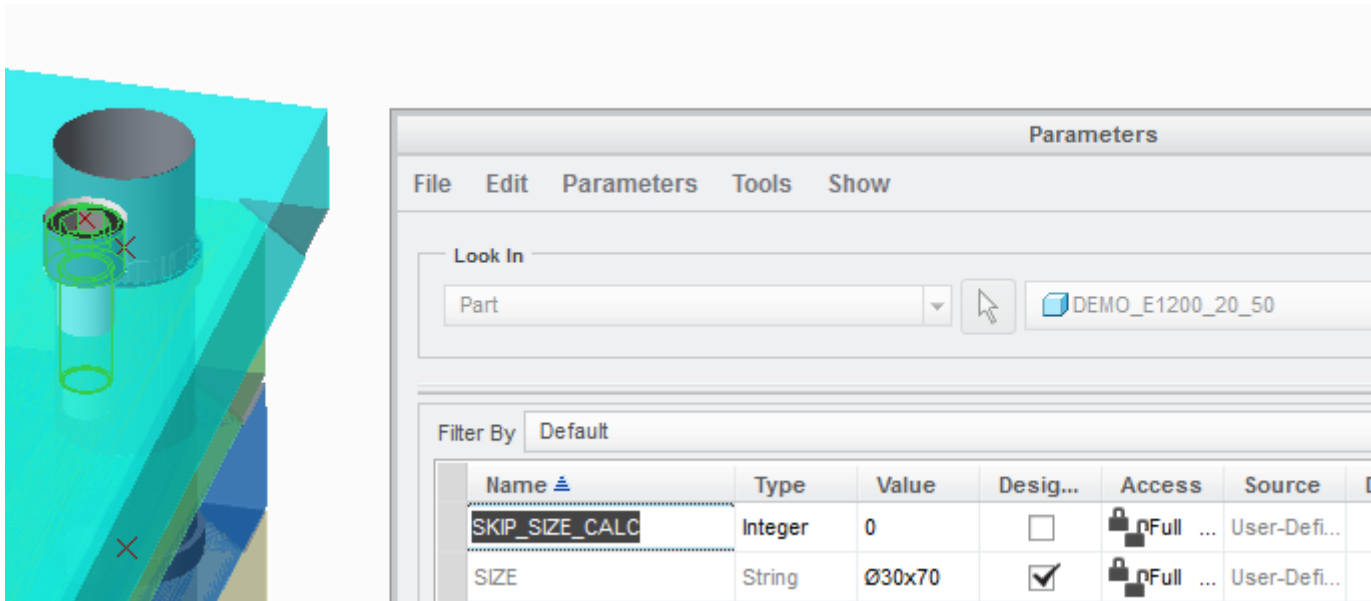


**Note: The value of this option must be set to the name of a parameter e.g. SKIP_SIZE_CALC**

# New EMX options

**9. NR_DIGITS_BOM** is used to calculate SIZE parameter and allows the value 0



| E... | V... | MODELL | POS | QTY | PARTNAME | PA... | (V) BOM_NAME | SUPPLIER | MATERIAL | (V) ORD_NUMBER | SIZE | NOTE |
|------|------|--------|-----|-----|----------|-------|--------------|----------|----------|----------------|------|------|
| ▶ | 👁 | ASM_PALM_1 | 1 | 4 | ASM_PALM_1 | * | ASM_PALM_1 | * | * | * | | * |
| ▶ | 👁 | ASM_PALM_REF | 2 | 4 | ASM_PALM... | * | ASM_PALM_REF | * | * | * | | * |
| ▶ | 👁 | ASM_PALM_WRK | 3 | 4 | ASM_PALM... | * | ASM_PALM_WRK | * | * | * | | * |
| ▶ | 👁 | DEMO_RISERS_R_MH001 | 4 | 2 | DEMO_RISE... | 01 | Risers MovingHalf | Meusburger | 1730 | F70/596x596/76x86-1730 | 156x40x35 | |
| | 👁 | DEMO_CAV_PLATE_MH001 | 5 | 1 | DEMO_CAV... | 01 | Cavityplate Moving... | Meusburger | 1730 | F50/596x596x56-1730 | 596x596x56 | |
| | 👁 | DEMO_EJRET_PLATE_MH001 | 6 | 1 | DEMO_EJRE... | 01 | EjectorBasePlate M... | Meusburger | 1730 | F80/596x596x27-1730 | 596x438x27 | |
| | 👁 | DEMO_EJBASE_PLATE_MH001 | 7 | 1 | DEMO_EJBA... | 01 | EjectorRetainerPlat... | Meusburger | 1730 | F85/596x596x36-1730 | 596x438x36 | |

# New EMX options

**10. LIBRARY_THUMB_SIZE** allows to set the size of the generated library part thumbnails
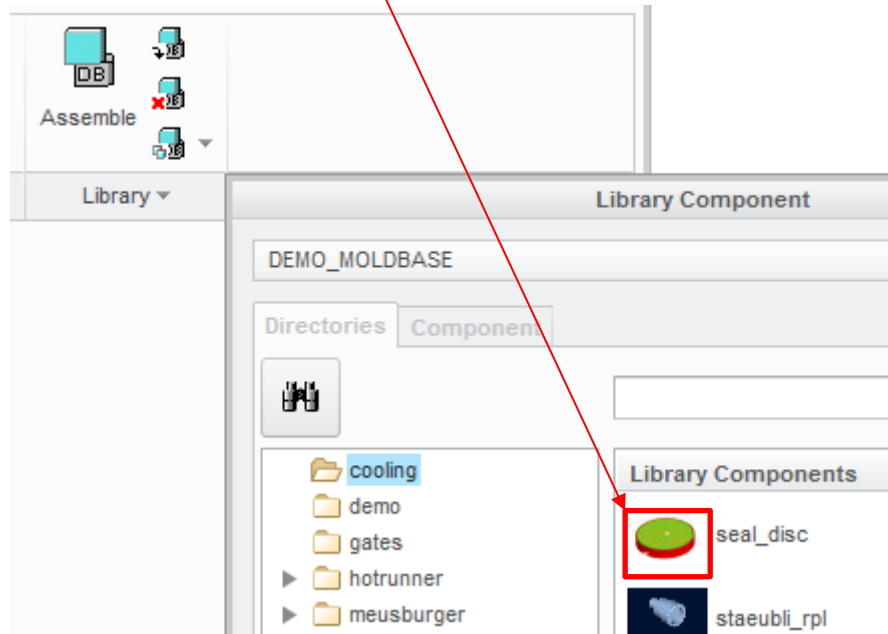
**11. PATTERN_QUILT_CUTS** **handles the way the cuts are created for patterned components**

1. When this Option is set on yes the system runs an interference check for the cuts and create then a refpattern
2. When set on now, the system creates interference checks individually for every pattern member

# New EMX options

**12. QUICK_PROMPT allows the user decide if selection of references should happen in loop**

When set on yes the system asks to select the assembly references before opening the Component dialog
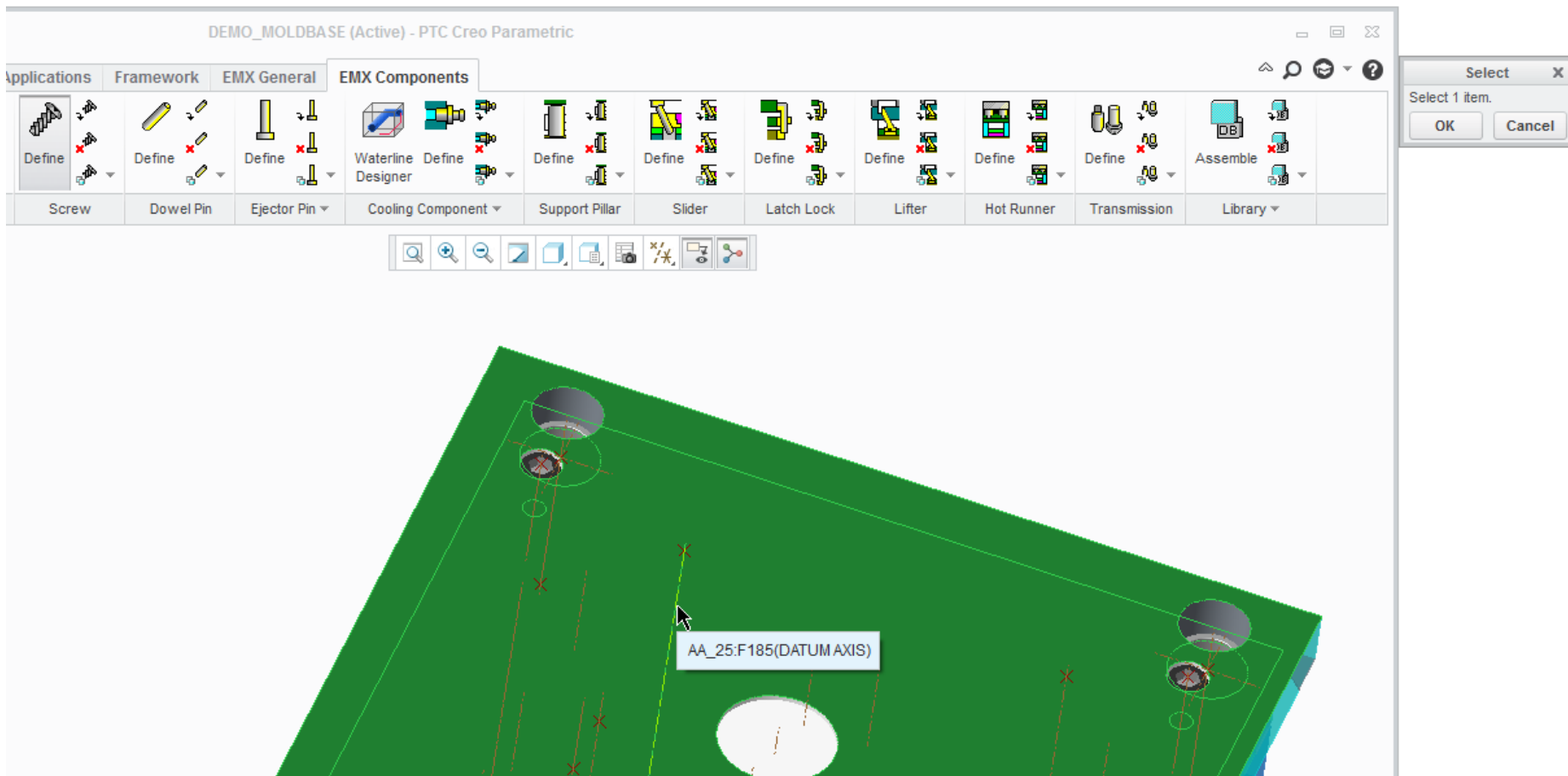
**13. SHOW_PRYSLOT** main switch to toggle the assembling of the pryslots off.
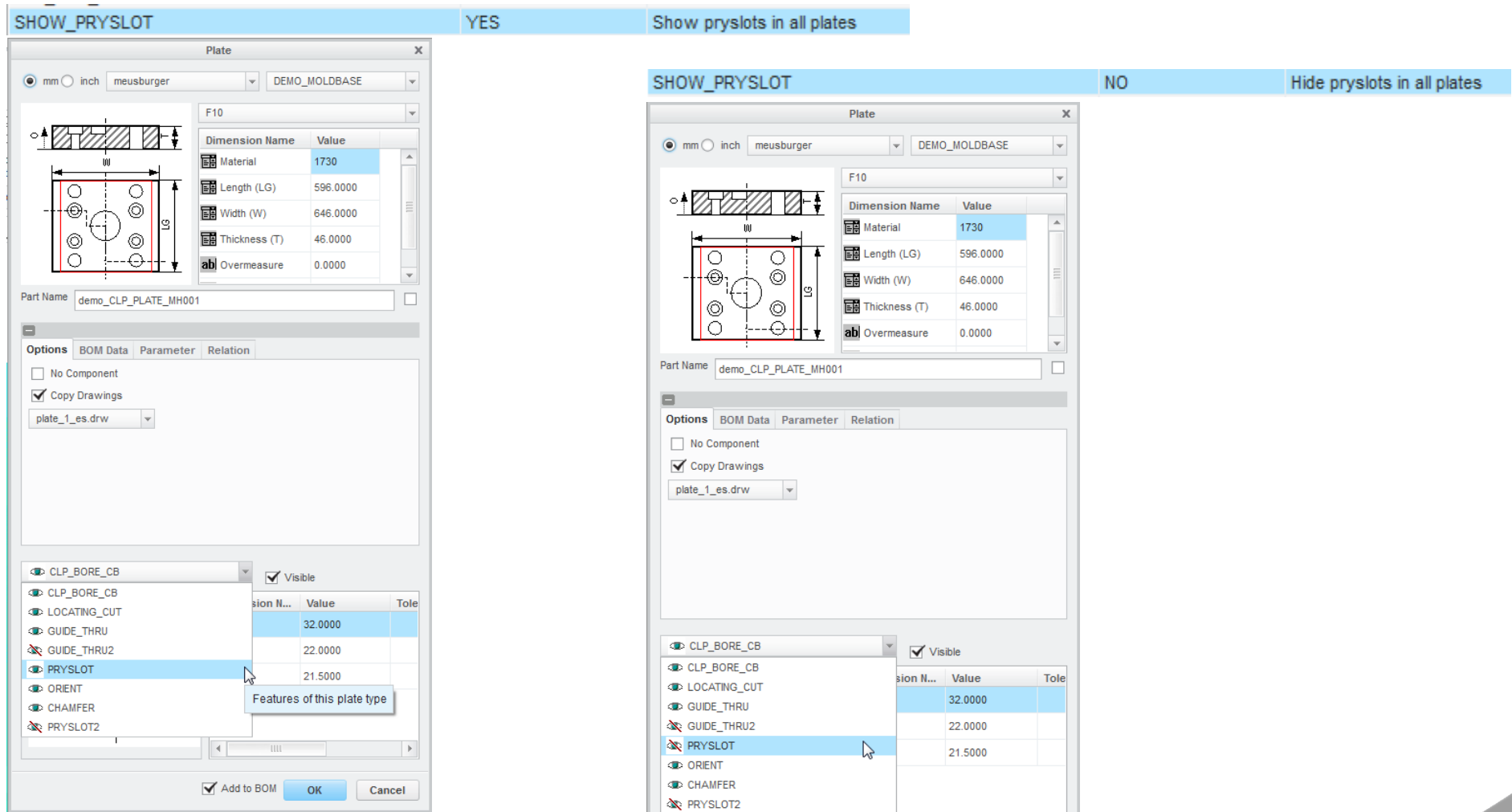


**Note: If option is set on yes the system takes the setting from the feature_data.txt file.**

# New EMX options

**14. TEST_MODE** new debug functionality – useful when encountering bugs or crashes



| TEST_MODE | YES | Save additional debug information in the Pro/ENGINEER trail file. |
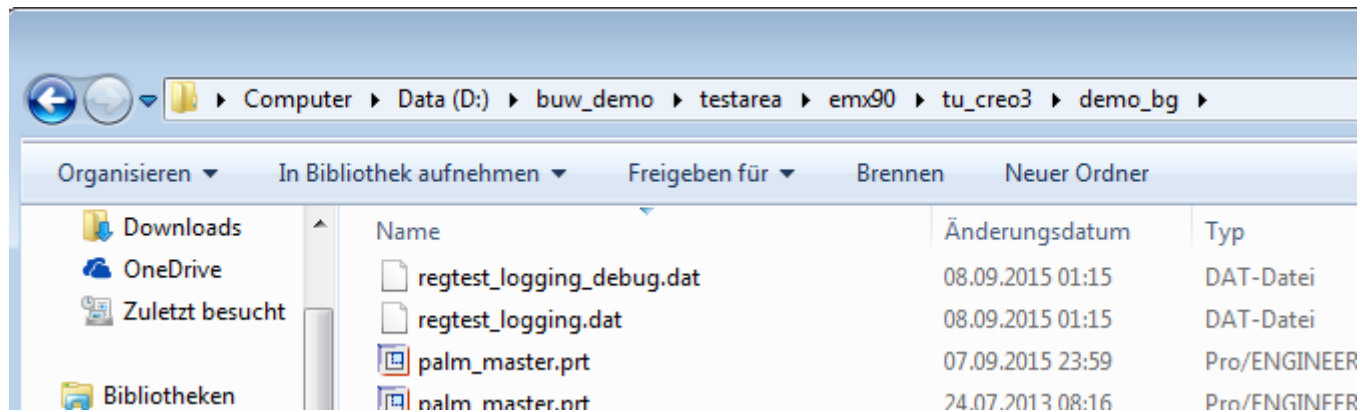


**Note: If set on yes the system outputs various debug Informations in the working directory. If you find a bug or have a crash these files can help us find the issue easier and faster.**

# New EMX options

**15. USE_ASM_WATERLINE_MDL allows creating two models for ES and IS of the waterline**
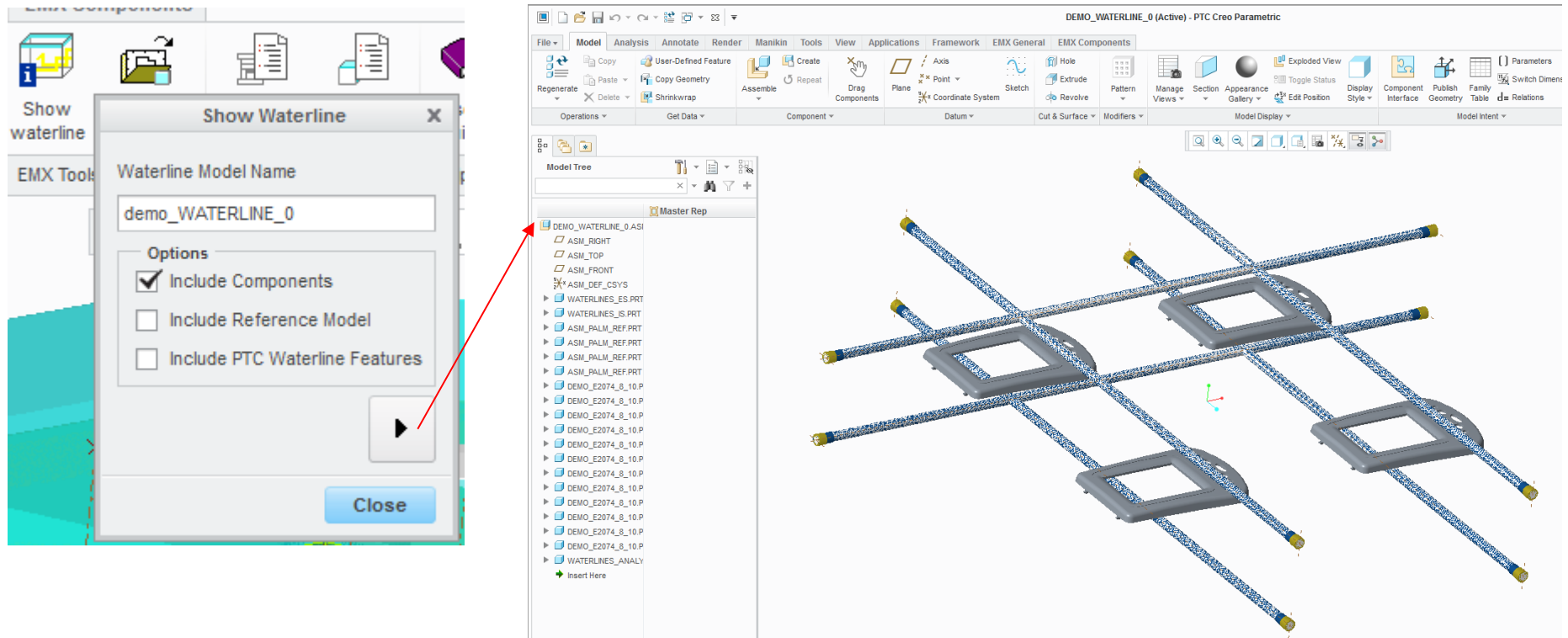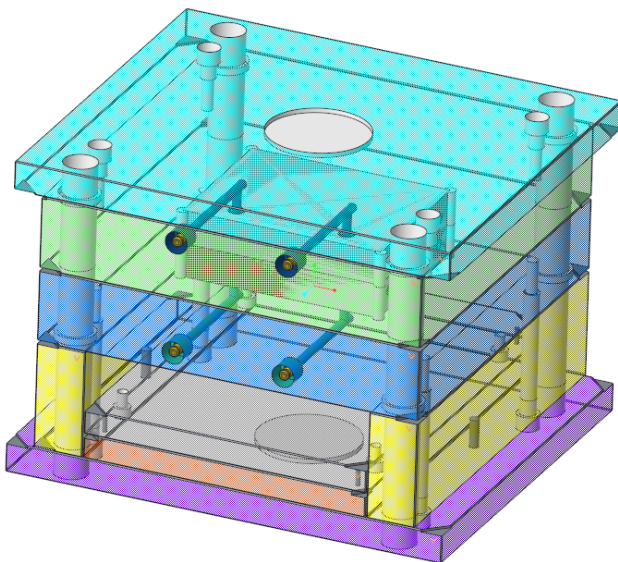
**16. USE_P_PLATE_STACK** must be used carefully because cuts dims come from *_bore.cfg files
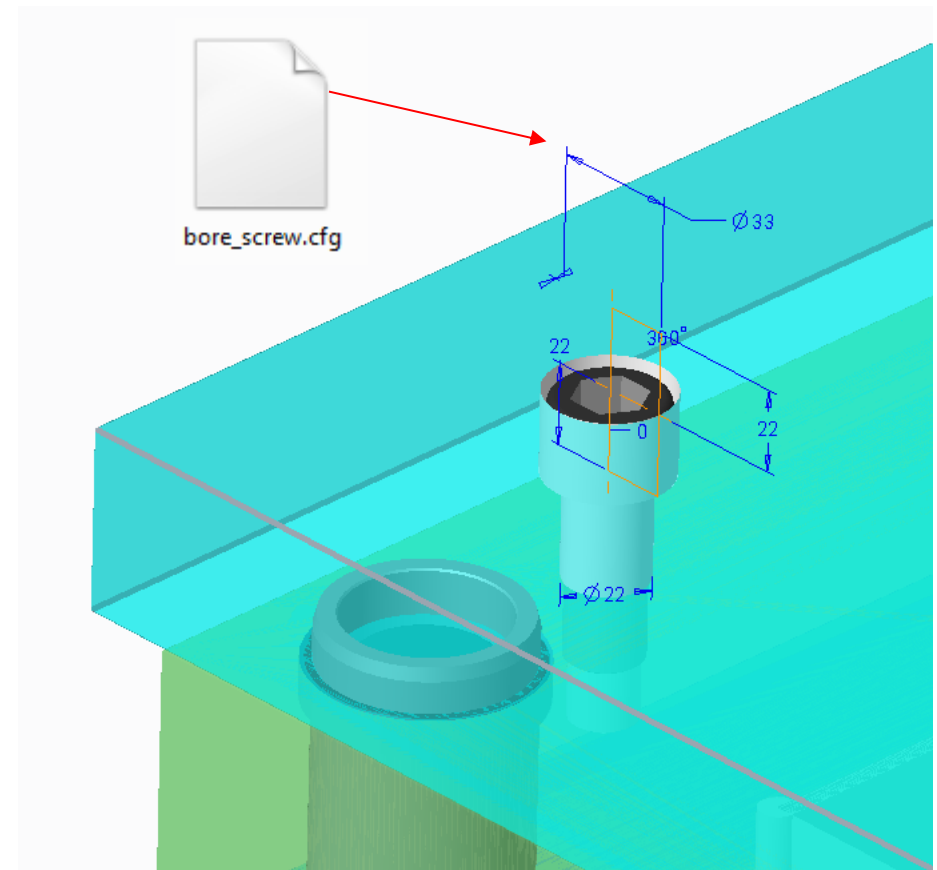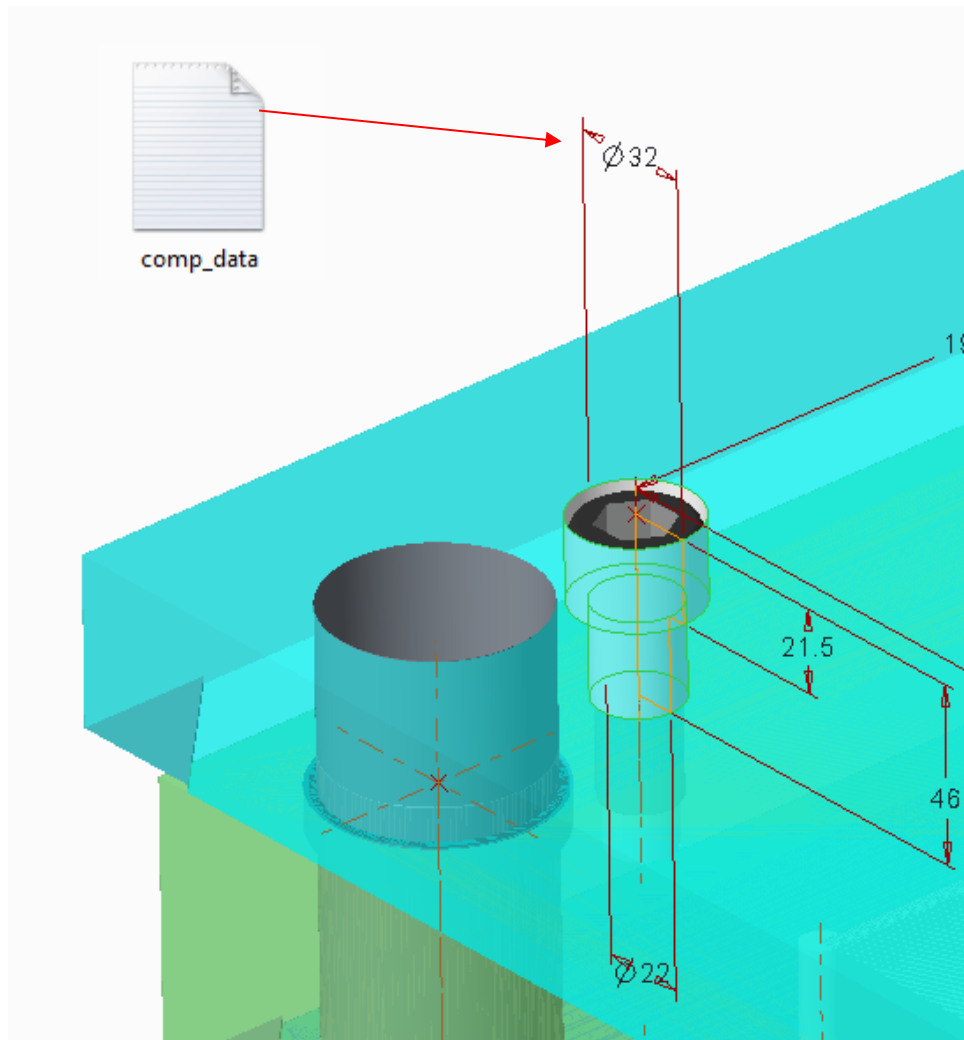
# Agenda

**Best Practice**

- Classify and Multi Cavity Process
- Improved Handling of BOM Parameters
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**New Features**

- The Mold Base Designer
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- Handling Component Updates
- Ejector Pins Design in Part Mode
- QA Measures

# Handling Component Updates

- Update and implement EMX components - Top priority task at B&W

- All request to implement new components or update existing ones are gathered and considered to be implemented in one of the next major releases

- Each new major release will contain a number of updated/new components which have top priority for most customers

- To decide the priority we need your help ☺

- Every component if updated or new implemented will be listed in a new document which will also be accesible from within the software

List of Updated Components

| EMX version | Datecode | Date | | | | |
|---|---|---|---|---|---|---|
| 9.0 | M010 | 05.12.2015 | | | | |

| Units | Type | Supplier | Component name | Geometry update | Configuration update | Newly added |
|---|---|---|---|---|---|---|
| mm | cooling | Meusburger | E2000 | no | yes | no |
| mm | cooling | Meusburger | E2002 | no | yes | no |
| mm | cooling | Meusburger | E20009 | no | yes | no |
| mm | cooling | Meusburger | E2004 | no | yes | no |
| mm | cooling | Meusburger | E2018 | no | yes | no |
| mm | cooling | Meusburger | E2019 | no | yes | no |

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# Ejector Pins Design in Part Mode

- Starting with EMX 9.0 F000 a layout curve can be assembled when placing an ejector pin directly in the reference model
- This features enjoys a very positive feedback and interest from the customers
- This feature may be basically defined for every component, but is most suitable for ejector pins
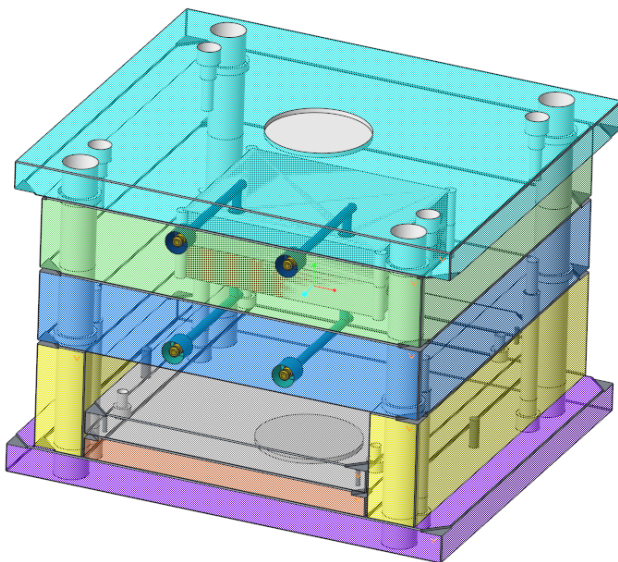
- You can define one layout curve for each component template to catch every detail
- Changes of the diameter, or angle and width for blade ejectors are updated live by using the preview button
- Predefined layout curves are available for following templates
ejector_1 (Hasco Z40)
ejct_e1700 (Meusburger  E1700)
ejector_5 (Hasco Z46)
- This feature to be extended by the Ejector pin designer

# Ejector Pins Design in Part Mode - 1
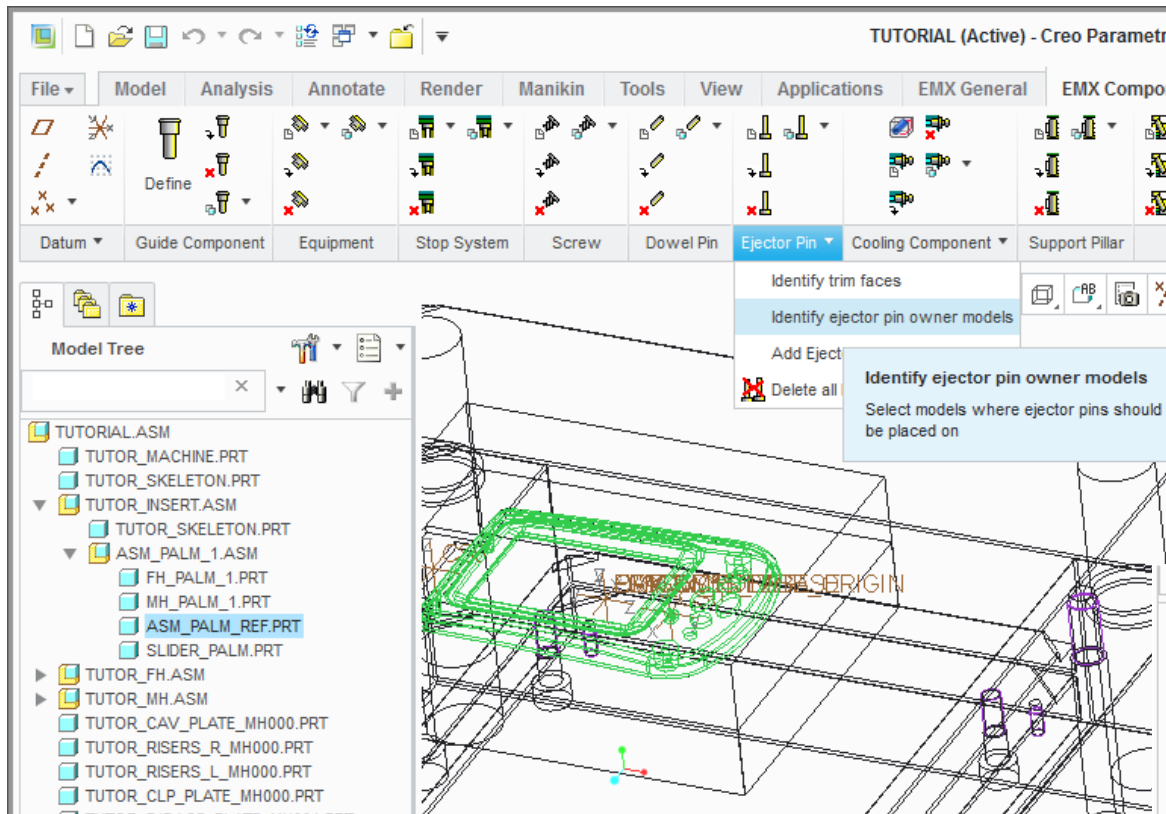


## STEP 1

Identify the reference model or insert part where ejector pins should be predefined.

EMX will ad a copy of the ejector placement plane and a CSYS-System for placement
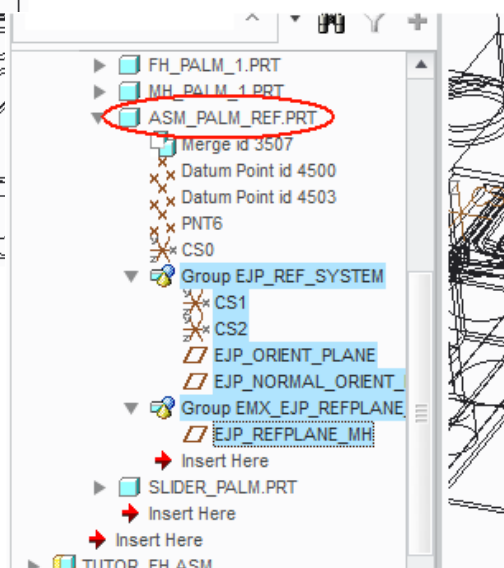
# Ejector Pins Design in Part Mode - 2



**STEP 2**

**Open the model and select „Ejector Pin">"Define".**
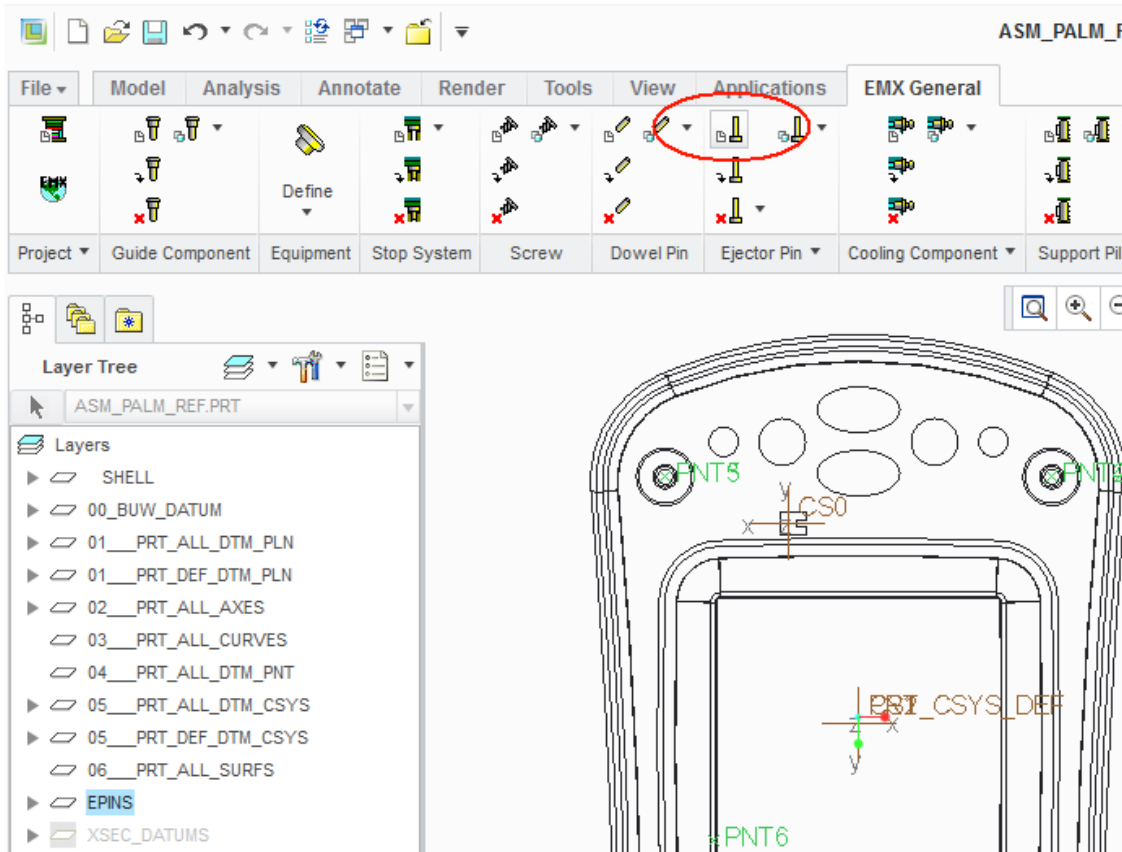
## STEP 3

After setting type, diameter, options, use the preview in Component dialog box so EMX can add a sketch to indicate the position and size of the predefined ejector pin.
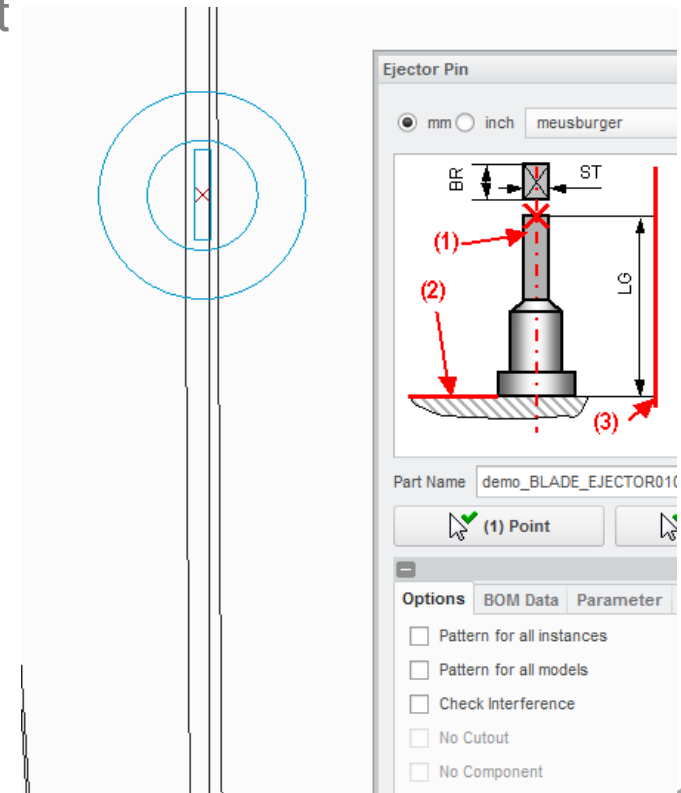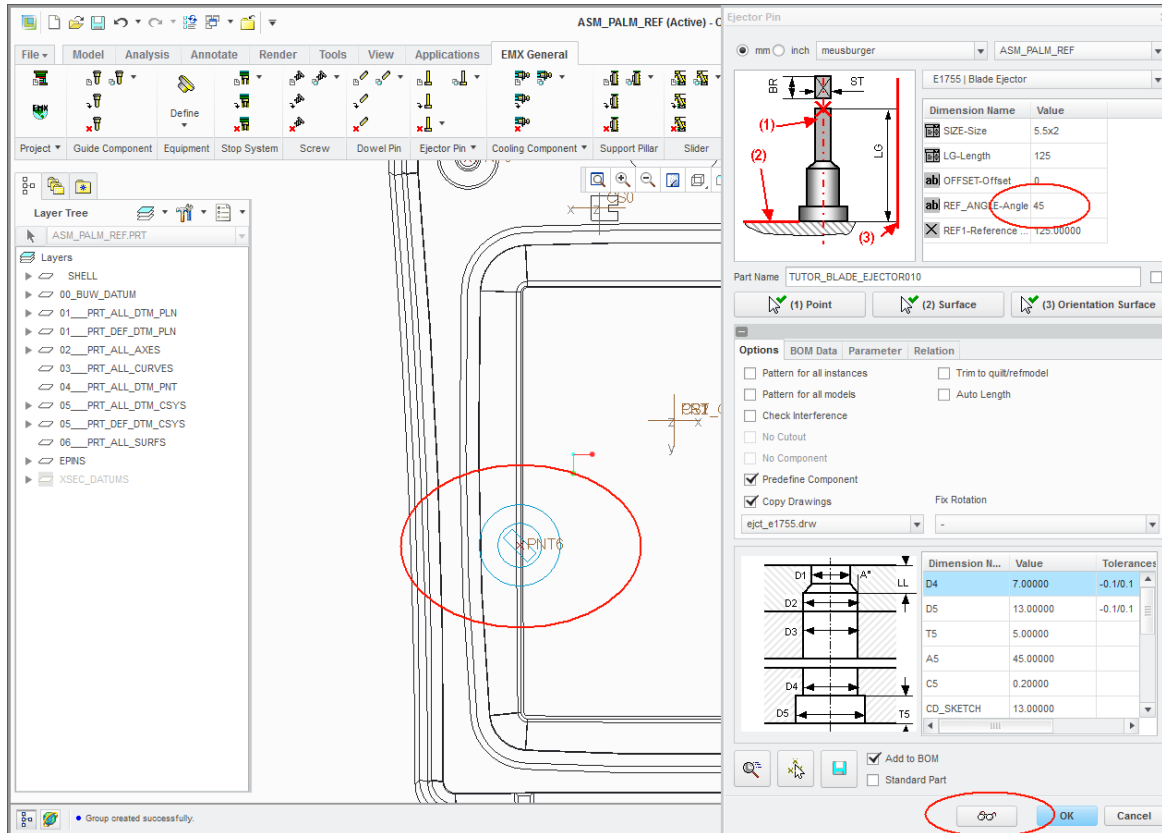
**See movie**

# Agenda

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## New Features

- The Mold Base Designer
- New EMX Options
- Handling Component Updates
- Ejector Pins Design in Part Mode
- QA Measures

# QA-Measures

» **Improve and ensure the quality of the software and of the component catalogs for EMX is another top priority goal at B&W**

» **Because of the big ammount of data automated tools were needed:**

- – Every single existing component including all its instances is assembled, and regenerated
- – Every single size of the existing plates is assembled and regenerated
- – Assembly references and dimensions are verified and corrected when failure

» **Hasco and Mesuburger component data are automatically imported using data provided directly by the supplier. Updates are fast and reliable**

» **Thanks to the Creo user interface every major release is tested using predefined trail files – regression tests**

» **Tests verify the overall behaviour in the same standard use cases to catch crashes or different workflow but also content – saved dimensions, parameters, etc.**

# QA-Measures – Checking components

» **Checking components automatically**

   – Open the test assembly

   – Push the checking button. Each one of the components under

   <emx_installpath>\components\<unit>\ are assembled and regenerated for
every instance
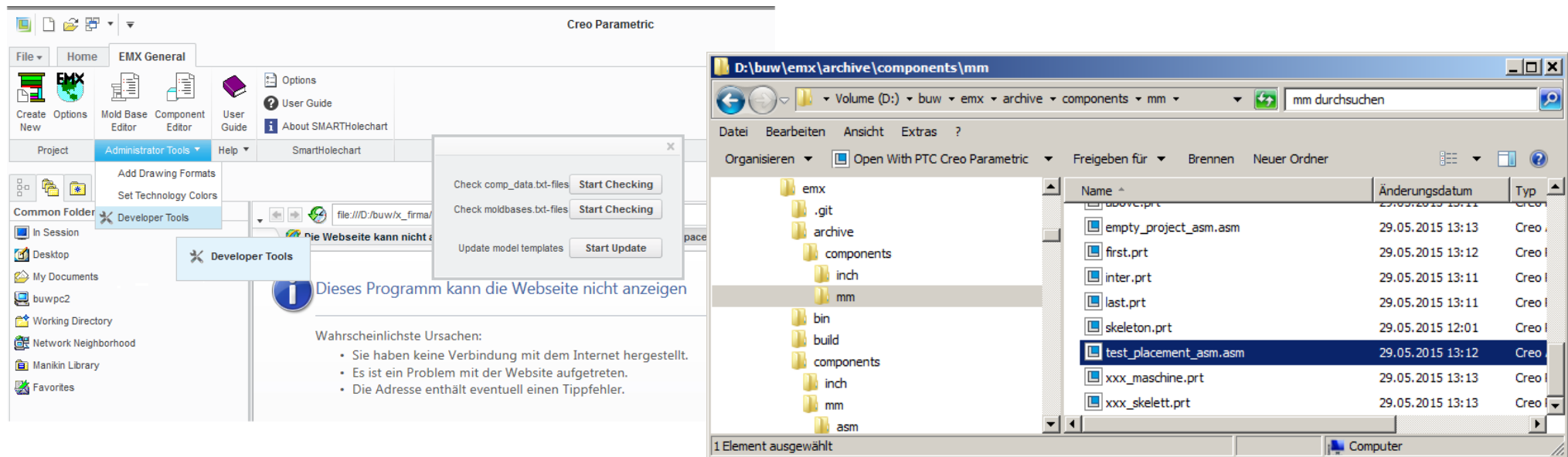


**See movie**

# QA-Measures – Testing with Regtests

» **Regression tests are fully automated and convenient to run**

» **They must deliver the same result for each release**

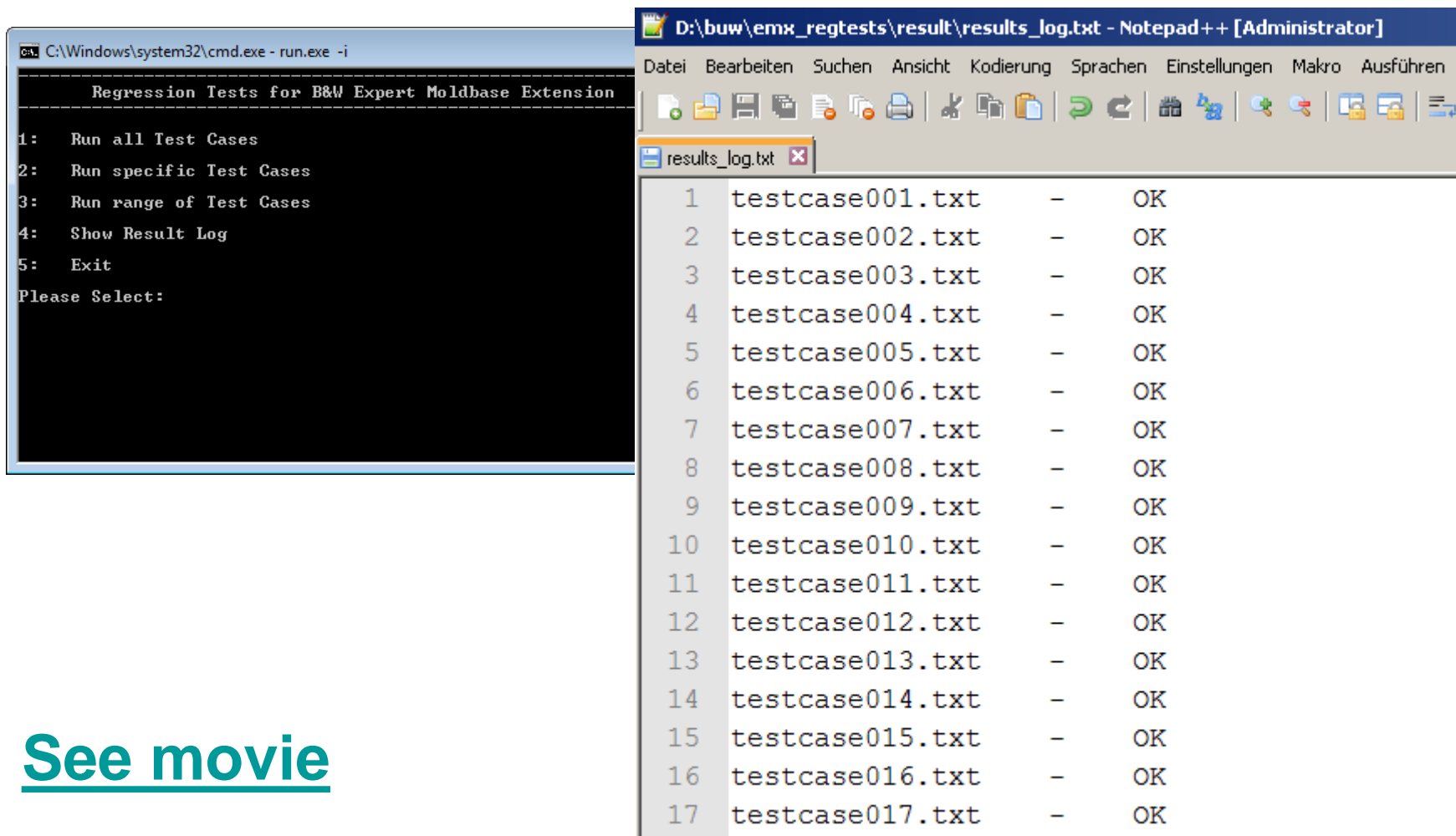» **They cover all the common tasks users do in EMX**

```
C:\Windows\system32\cmd.exe - run.exe  -i

        Regression Tests for B&W Expert Moldbase Extension

1:    Run all Test Cases
2:    Run specific Test Cases
3:    Run range of Test Cases
4:    Show Result Log
5:    Exit
Please Select:
```

```
D:\buw\emx_regtests\result\results_log.txt - Notepad++ [Administrator]

Datei  Bearbeiten  Suchen  Ansicht  Kodierung  Sprachen  Einstellungen  Makro  Ausführen

results_log.txt

  1    testcase001.txt      -      OK
  2    testcase002.txt      -      OK
  3    testcase003.txt      -      OK
  4    testcase004.txt      -      OK
  5    testcase005.txt      -      OK
  6    testcase006.txt      -      OK
  7    testcase007.txt      -      OK
  8    testcase008.txt      -      OK
  9    testcase009.txt      -      OK
 10    testcase010.txt      -      OK
 11    testcase011.txt      -      OK
 12    testcase012.txt      -      OK
 13    testcase013.txt      -      OK
 14    testcase014.txt      -      OK
 15    testcase015.txt      -      OK
 16    testcase016.txt      -      OK
 17    testcase017.txt      -      OK
```

## See movie

# QA-Measures – Reporting issues

» **Reporting issues is an important step for improving the overall quality of the software**

» **To make reporting even there are a few aditional steps which help us find faster the issue:**

- Add snapshots to the reports – they are worth 1000 words

- If we cannot reproduce the error it would be best if you can provide us with the following files:

  - Trail file from the session where the issue was reproducible

  - If creo crashes the traceback.log file from the working directory

  - The files regtest_logging.dat and regtest_logging_debug.dat from the working directory after setting the Option TEST_MODE to yes

  - EMX.log file

- In some rare cases we also need the Moldbase assembly or a simplified version of it.