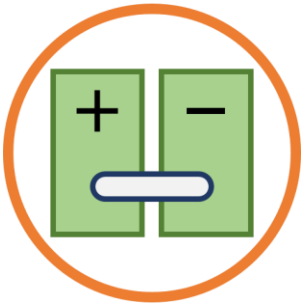
Battery Pack Design



Step by Step Installation Guide
&
User Manual for SOLIDWORKS

Contents

1 Installation 2
1.1 Step 1: Download the software and unzip the file 2
1.2 Step 2: Run setup as an administrator 3
1.3 Step 3: Setup wizard 4
1.4 Step 4: Installation folder selection 4
1.5 Step 5: Installation and finish 5
2 Trial Period 6
2.1 How to activate Trial 6
3 How to use Battery Pack Design 8
3.1 Use of 'Create Battery Pack' 8
3.1.1 Create Battery Pack by Design 8
3.1.2 Create Battery Pack by Analysis 10
3.2 Use of 'Edit Battery Pack' 12
3.3 Use of 'Battery License Manager' 12
3.4 Additional Features: 13
4 Contact us: 14

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1 Installation

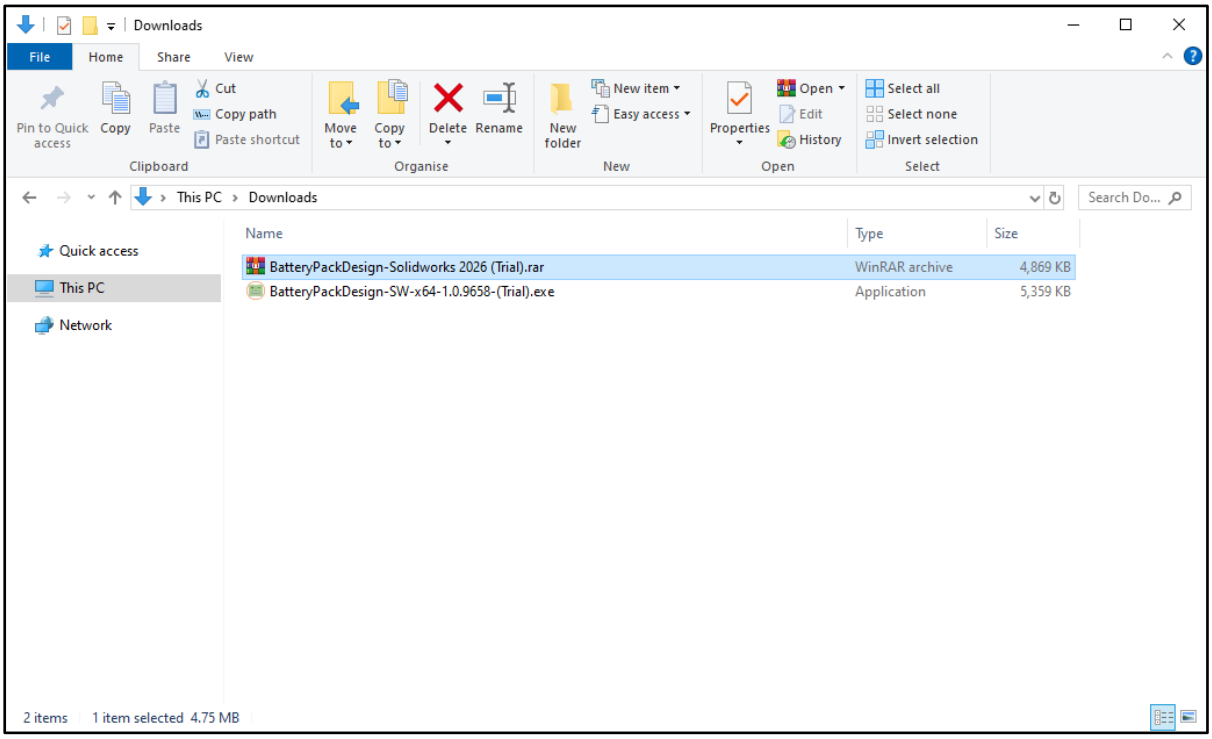
1.1 Step 1: Download the software and unzip the file

Download the **Battery Pack Design for SOLIDWORKS** from our official website: -

https://engenext.com/pages/batterypackdesign.html

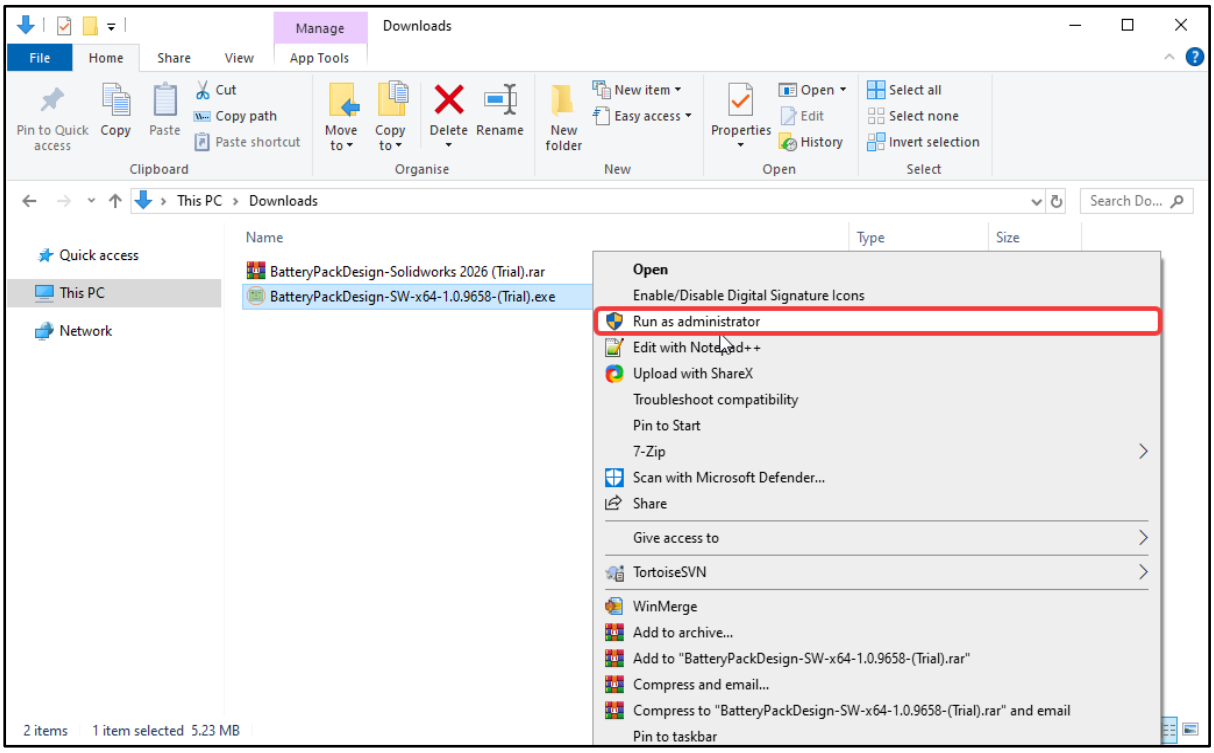
unzip the file using any unzip tool.

After unzipping the file '**BatteryPackDesign-SW-x64-…. .exe**' will be created as shown below.



1.2 Step 2: Run setup as an administrator

Run the extracted .exe file as an administrator.



Note: -

If windows defender firewall protection dialogue appears saying unknown publisher select **More information --> Run anyway**

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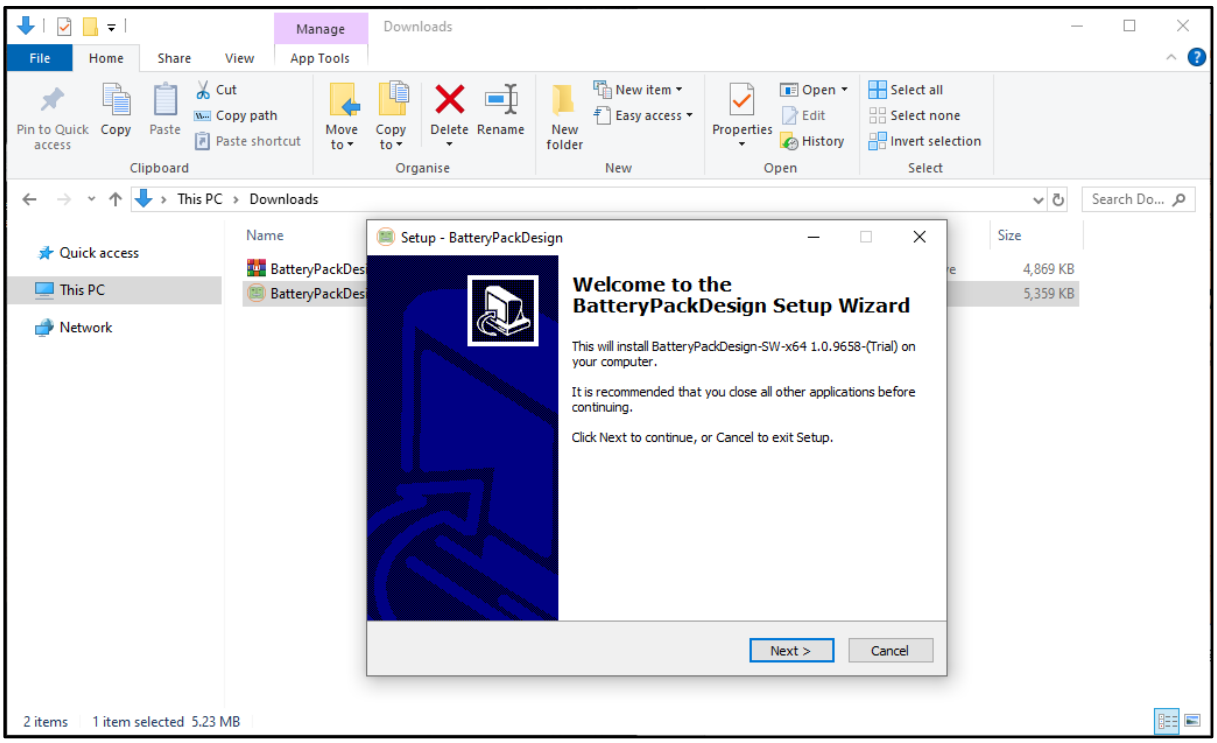
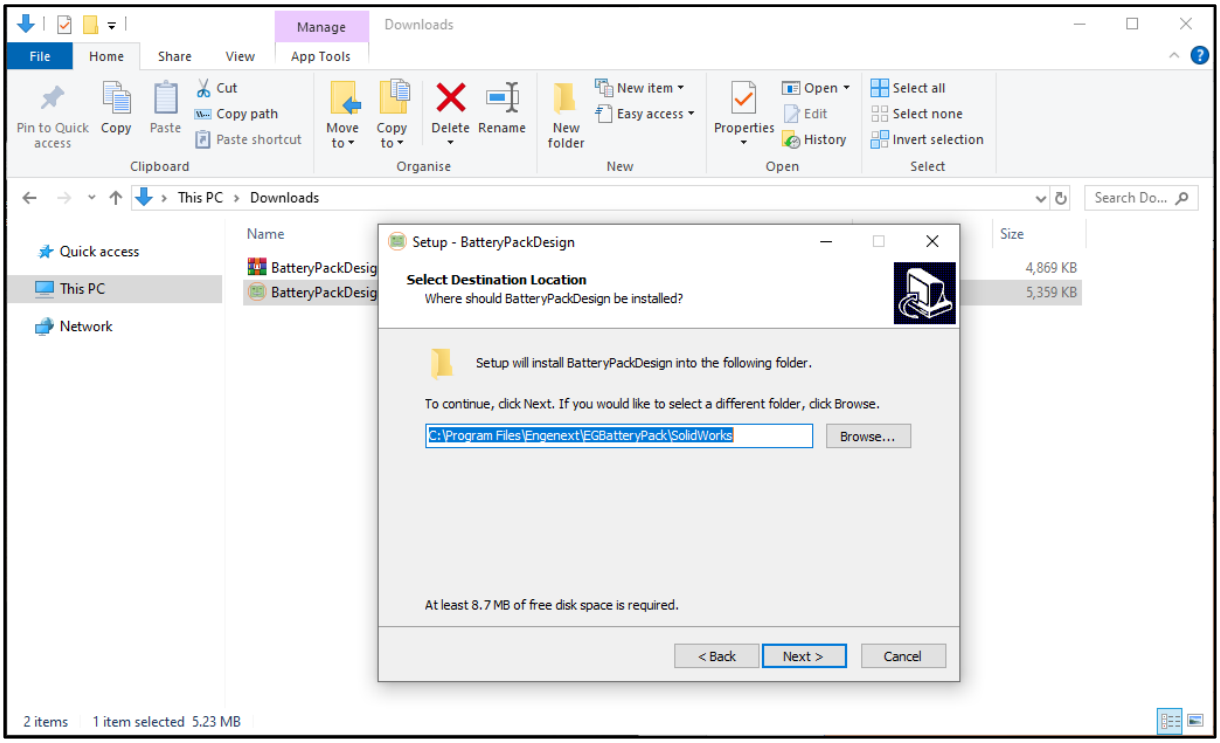
1.3 Step 3: Setup wizard

A window saying '**welcome to the BatteryPackDesign setup wizard'** will popup, Click on next.



1.4 Step 4: Installation folder selection

Select installation folder (recommended to keep default) for installing software and click next.



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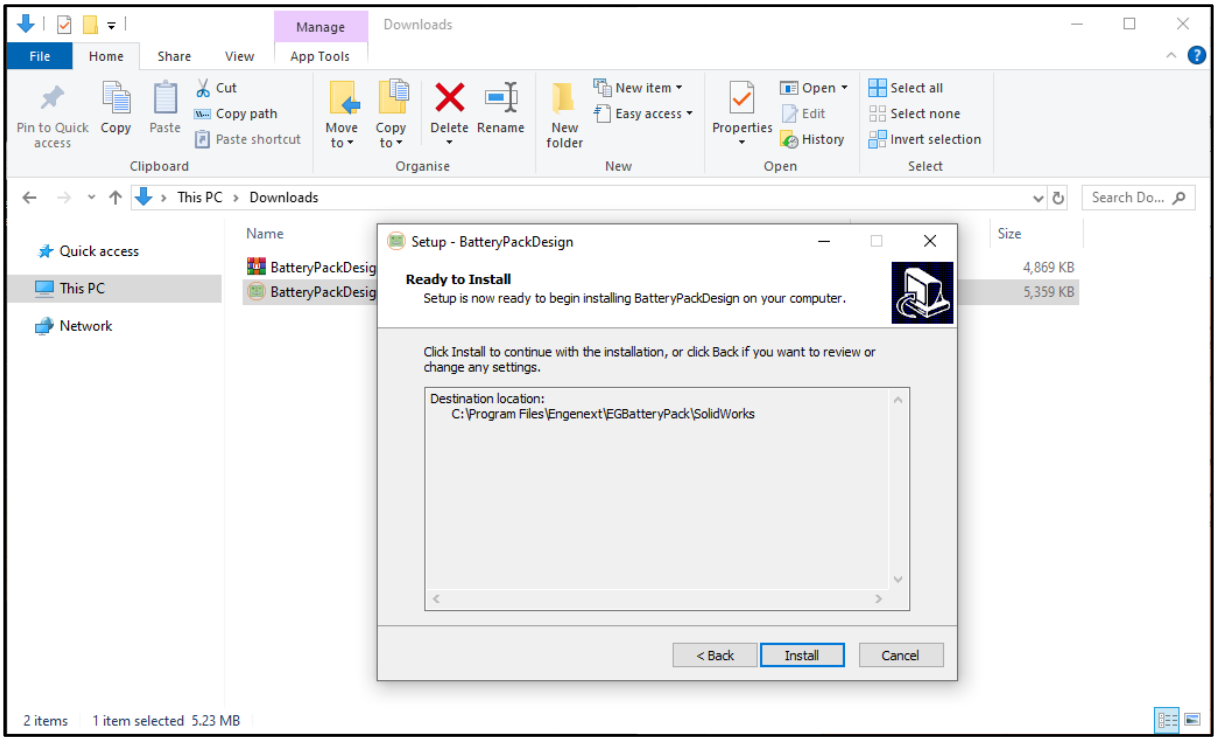
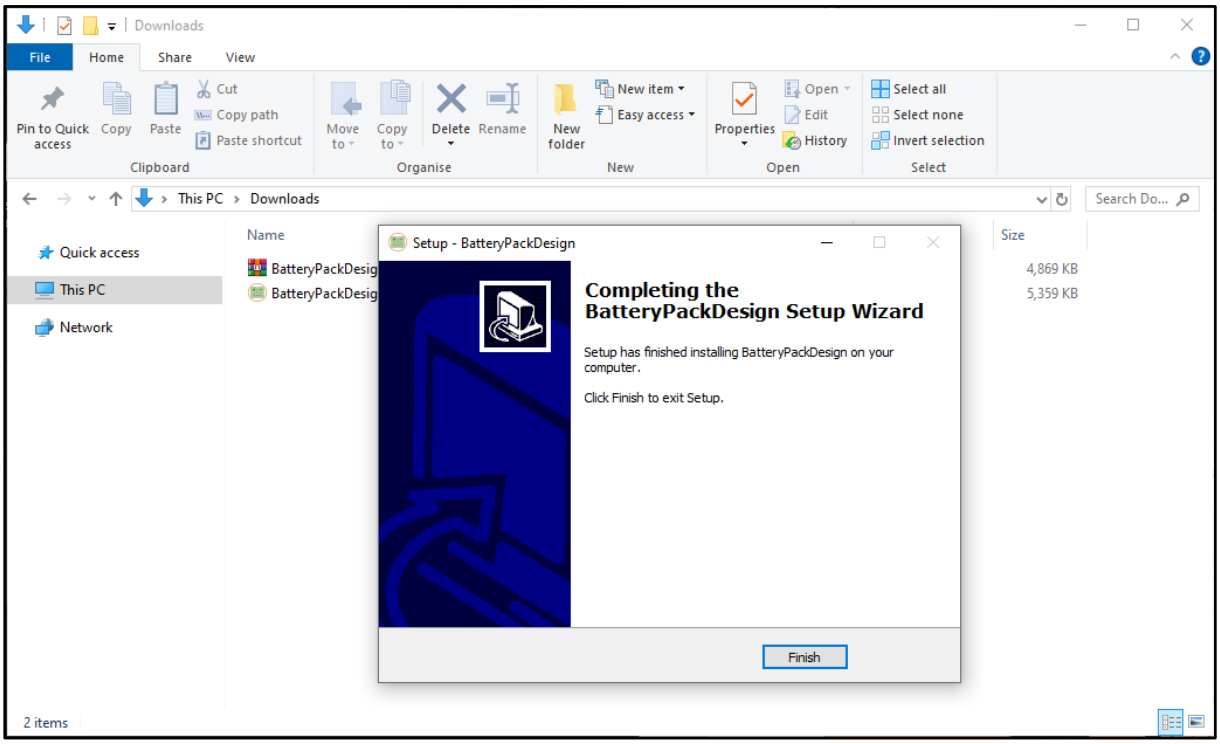
1.5 Step 5: Installation and finish

After selecting the preferences click **Install**, the setup will install **Battery Pack Design** to specified path



Click **Finish** to complete the installation**,** the Battery Pack Design is now ready to use from SOLIDWORKS.



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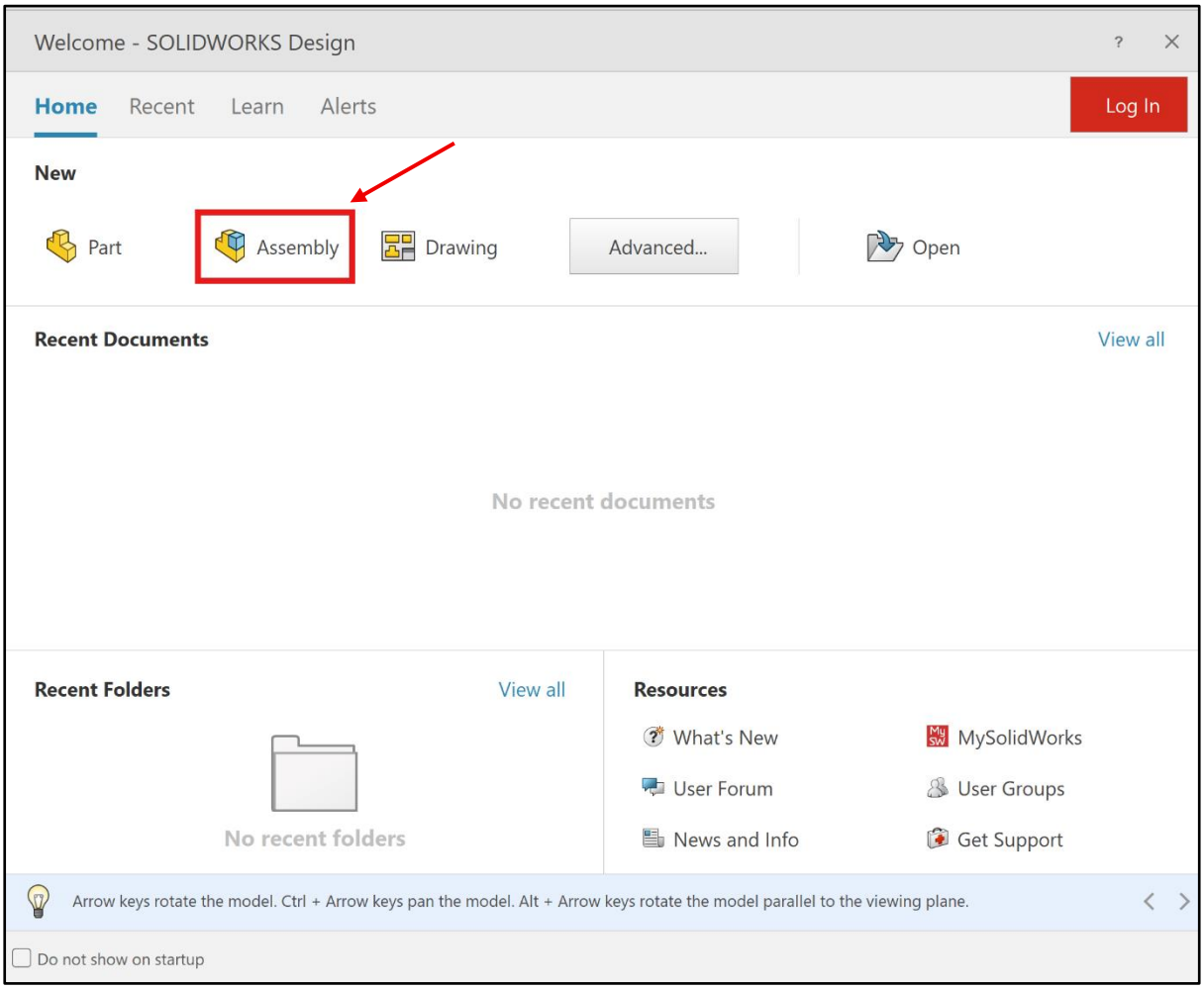
2 Trial Period

2.1 How to activate Trial

Free trial of the plugin is provided **for 7 days or 25 sessions from the date of installation.**

After **successful installation** of the Battery Pack Design, **start** the **SOLIDWORKS** and **click** new **Assembly**. One assembly file can contain only one battery pack design.



A tab named **'Battery Pack Configurator'** will be shown with following buttons

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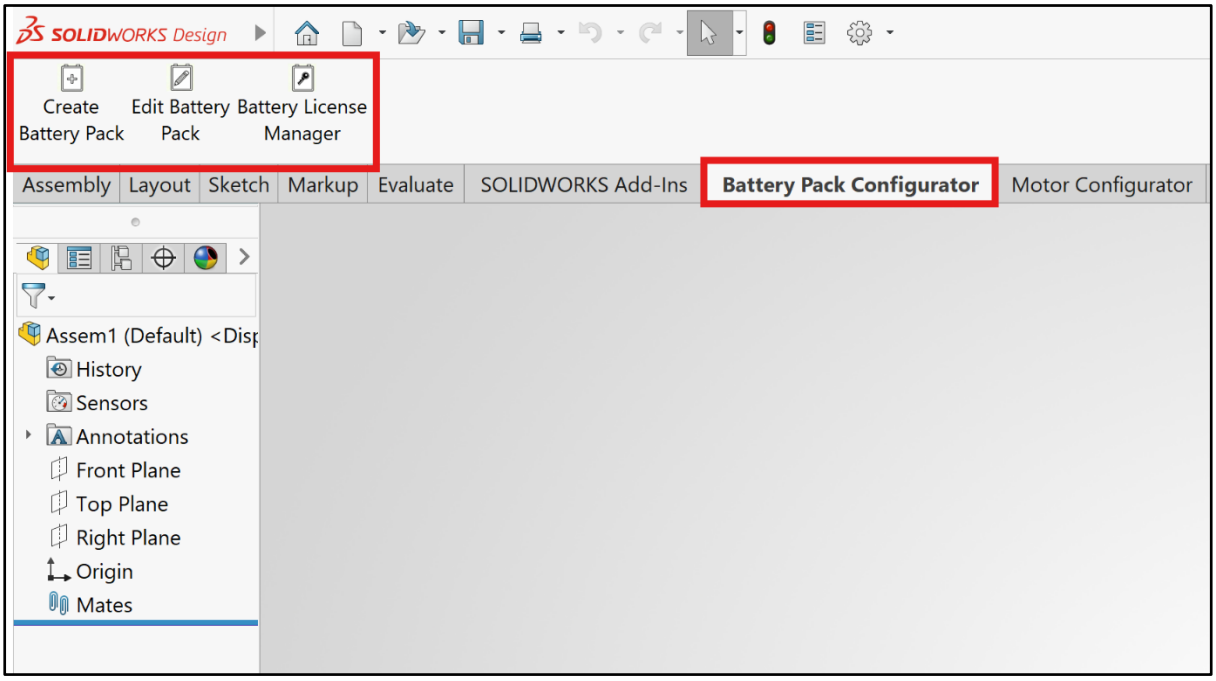
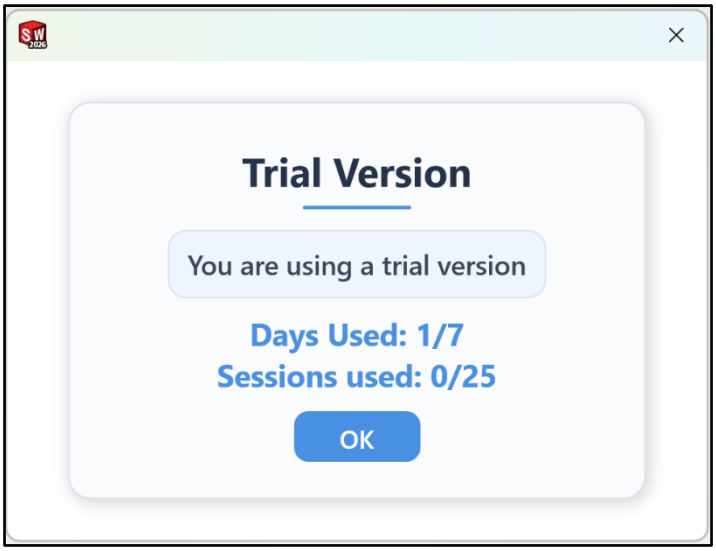
1. Create Battery Pack
2. Edit Battery Pack
3. Battery License Manager

Detailed description of these functionalities in given below.



Click on **'Create Battery Pack'** trial will be activated and a popup will appear as shown below.



Note: The dialog box displayed above will pop up every time on starting SOLIDWORKS and only once after **'Create or Edit Battery Pack'** is started.

For queries related to Battery Pack Design please reach out to contact@engenext.com

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3 How to use Battery Pack Design

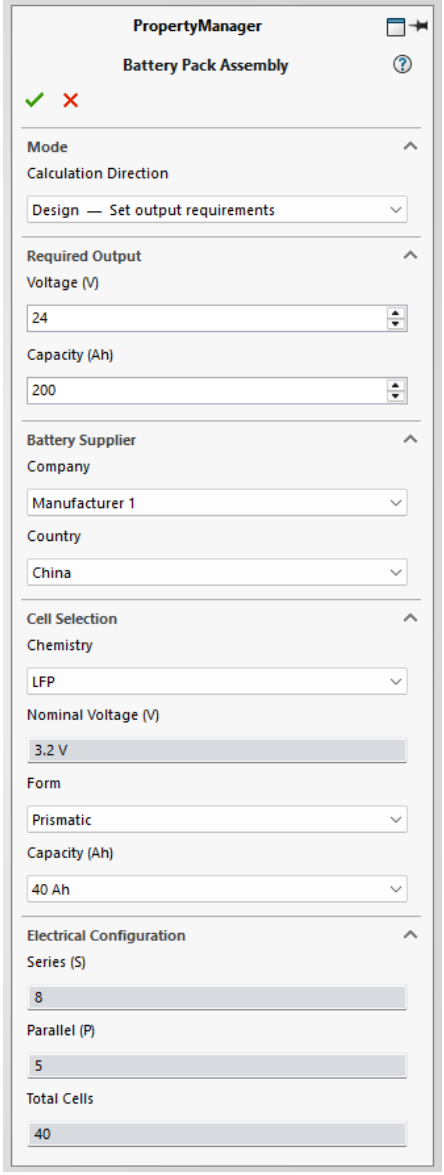
3.1 Use of 'Create Battery Pack'

To use the **Battery Pack Design**, you already have an **assembly** file open, in which you want to create a battery pack design. Click the button **'Create Battery Pack'**
UI Dialog will be shown on the left. It contains various controls to design a battery pack.
Battery pack can be designed by two Modes viz.

1. **By design:** Specify required Electrical output, Select batteries. System will calculate number of Series and Parallel configuration and connections.
2. **By Analysis:** Specify required Series and Parallel configuration, Select batteries. System will calculate connections and electrical output.

In both cases the UI dialog is mostly similar.
On selecting '**Design- Set output requirements'** as calculation direction, following UI is shown in left pane. All applicable fields are set to default values.

3.1.1 Create Battery Pack by Design



✓and × buttons on the top are used to apply/ cancel the changes.

Mode:
Calculation Direction: Choose the mode in which you want to create a battery pack. Here we select 'Design'

Required Output:
Voltage(V): Specify required output DC voltage
Capacity (Ah): Specify required output Capacity

Battery Supplier:
Company: Select company
Country: Select Manufacturing Location

Cell Selection:
Chemistry: Select Chemistry
Nominal Voltage depends on the chemistry chosen.
Form: Select Prismatic/Cylindrical/Blade as available
Capacity: Select single Battery Capacity

Electrical Configuration: System will calculate Series and Parallel configuration and show them as output
Series: Number of cells in series
Parallel: Number of cells in parallel
Total Cells: Total cells used in the battery pack

Upon entering all inputs, click ✓ button. Battery pack CAD will be produced in the viewing area.
You can cancel the process any time by clicking × button.

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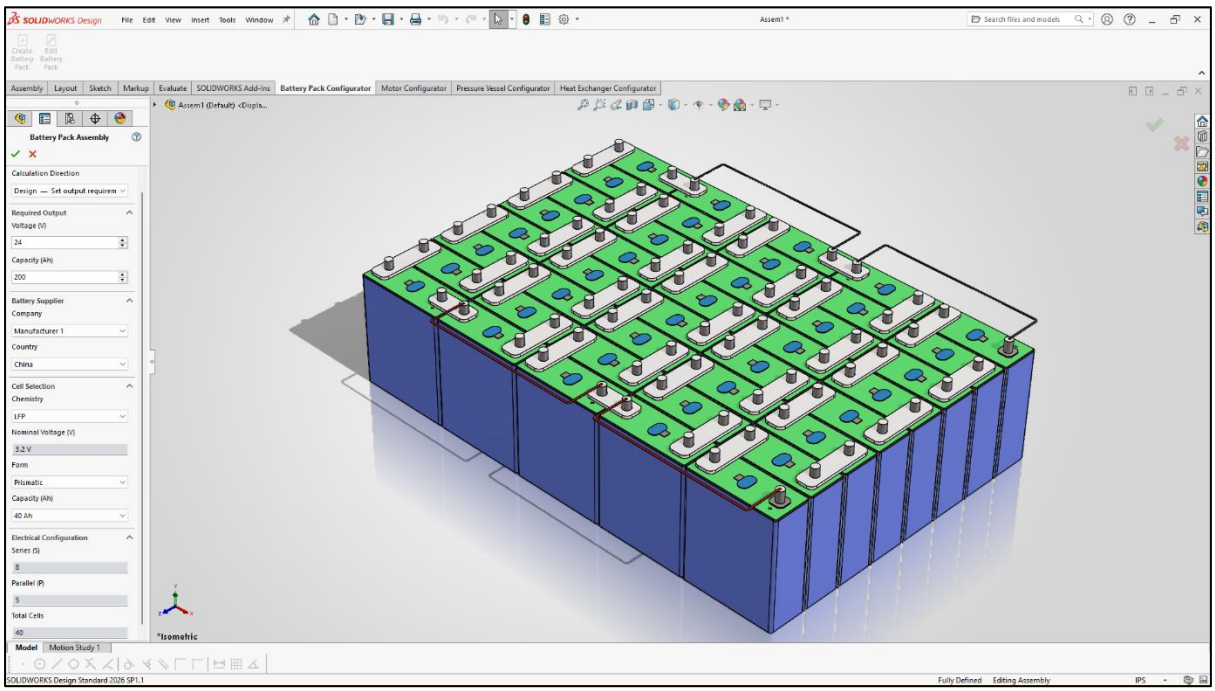
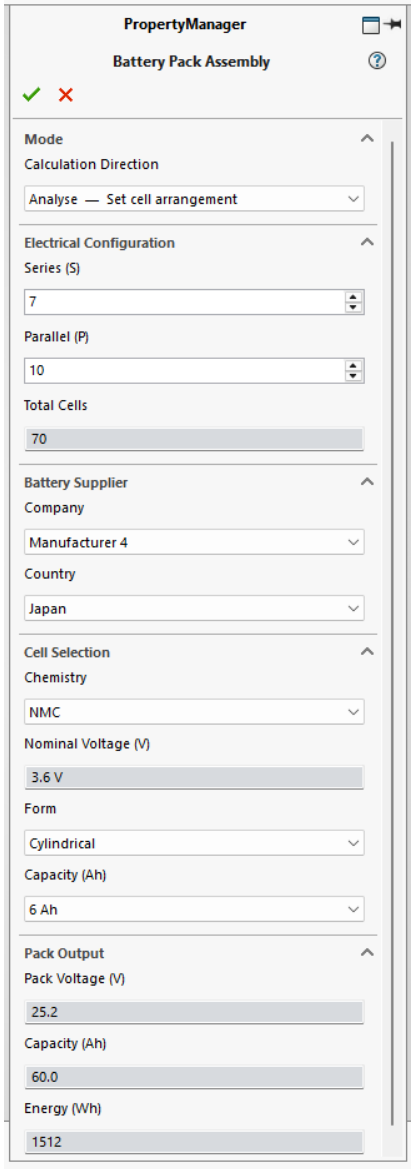
Following image shows the output created for a battery pack created by Design.



3.1.2 Create Battery Pack by Analysis

On selecting '**Analyse- Set cell arrangement'** as calculation direction, following UI is shown in left pane. All applicable fields are set to default values.



✓and × buttons on the top are used to apply/ cancel the changes.

Mode:
Calculation Direction: Choose the mode in which you want to create a battery pack. Here we select 'Analyse'

Electrical Configuration: Provide number of cells in Series and Parallel configuration
Series: Number required of cells in series
Parallel: Number required of cell in parallel
Total Cells: Total cells used in the battery pack

Battery Supplier:
Company: Select company
Country: Select Manufacturing Location

Cell Selection:
Chemistry: Select Chemistry
Nominal Voltage depends on the chemistry chosen.
Form: Select Prismatic/Cylindrical/Blade as available
Capacity: Select single Battery Capacity

Pack Output:
Voltage(V): Output DC voltage will be displayed
Capacity (Ah): Output Capacity will be displayed
Energy (Wh): Output Energy will be displayed

Upon entering all inputs, click ✓ button. Battery pack CAD will be produced in the viewing area.
You can cancel the process any time by clicking × button.

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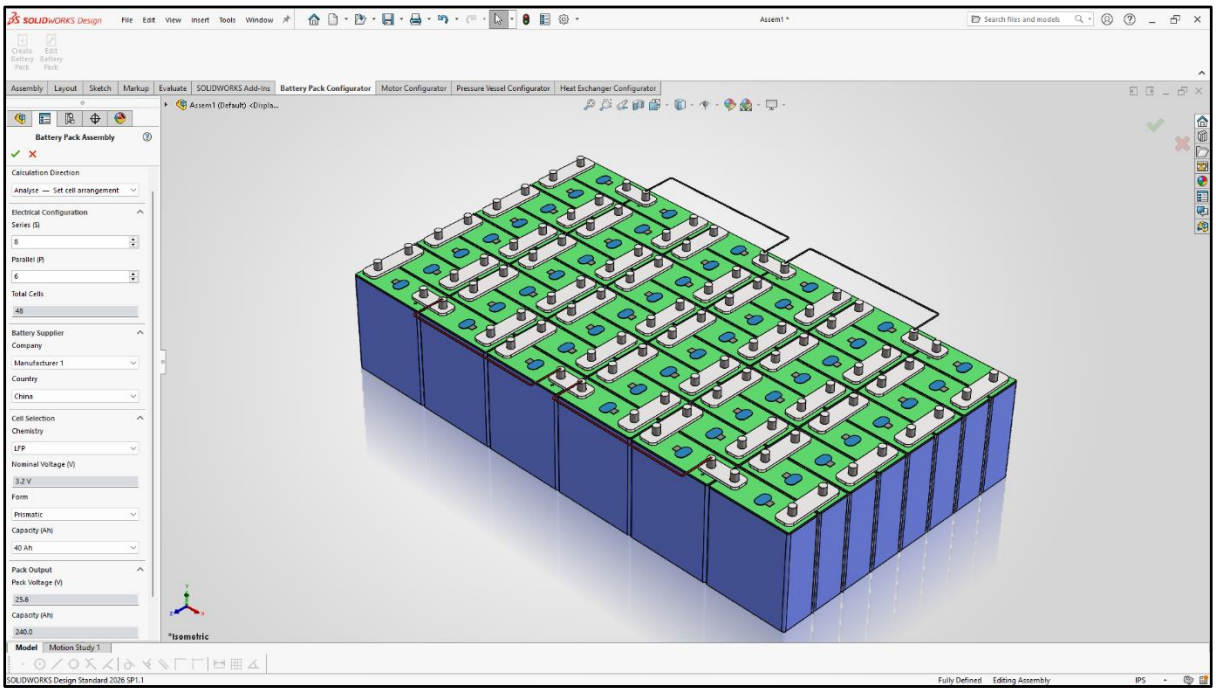
Following image shows the output created for a battery pack created by Analysis.



3.2 Use of 'Edit Battery Pack'

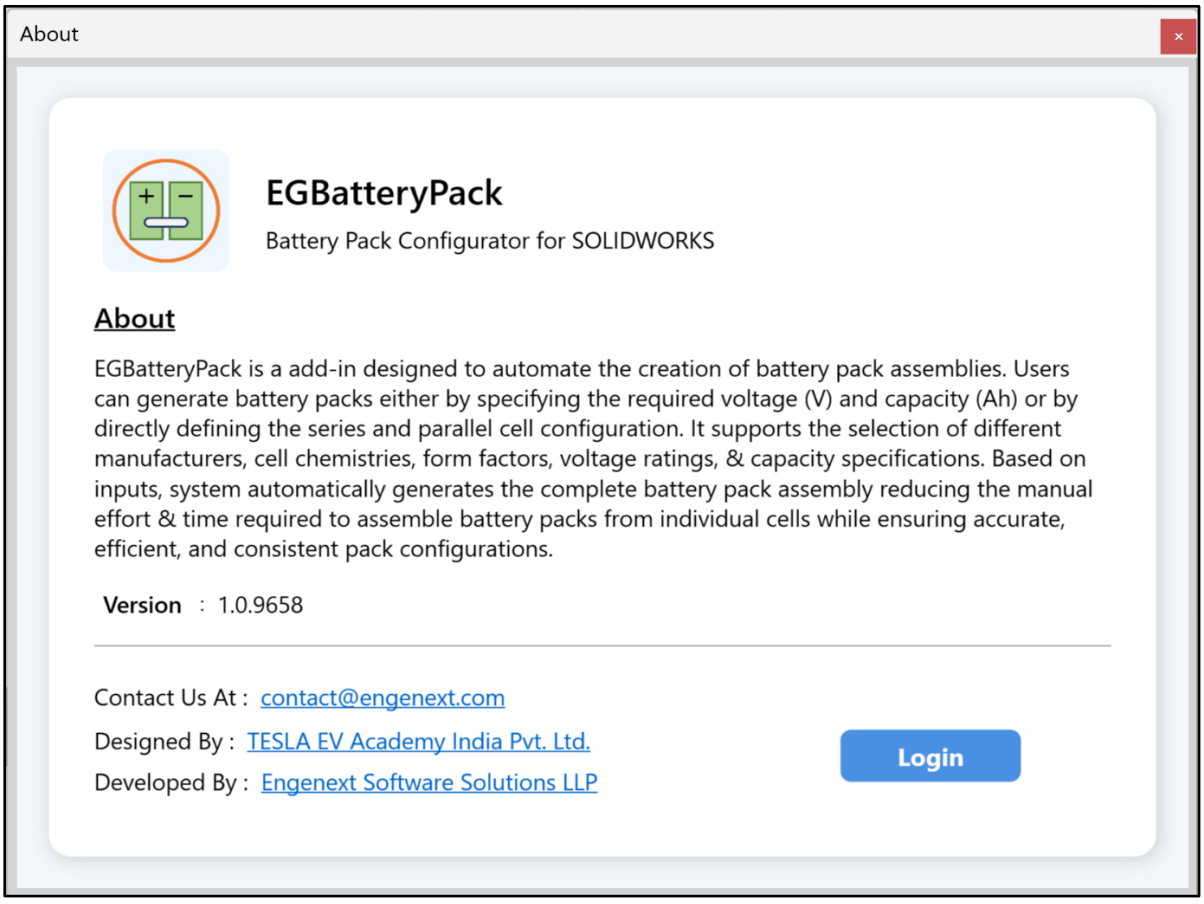
The **Edit Battery Pack** functionality enables users to modify an existing battery pack configuration without creating a new pack from scratch. This feature is useful when changes are required to parameters such as cell specifications, pack arrangement, electrical characteristics, or other configuration settings.

When the user clicks the **Edit Battery Pack** option, the system retrieves the selected battery pack configuration and automatically populates all associated values in the user interface. This allows users to review the existing settings and make only the necessary modifications.

Once the required modifications have been completed, the user should click the ✓ **(Apply)** button to update values and apply the changes to the battery pack configuration. The battery pack model is automatically updated to reflect the new changes.

3.3 Use of 'Battery License Manager'

'Battery License Manager' contains information about the programme, Version Number, contact details and brochure of the software for trial mode. Just click 'Battery License Manager' to access the information.



NOTE: - A 'Login' Button in the Battery License Manager will allow users to use login functionality in future production version.

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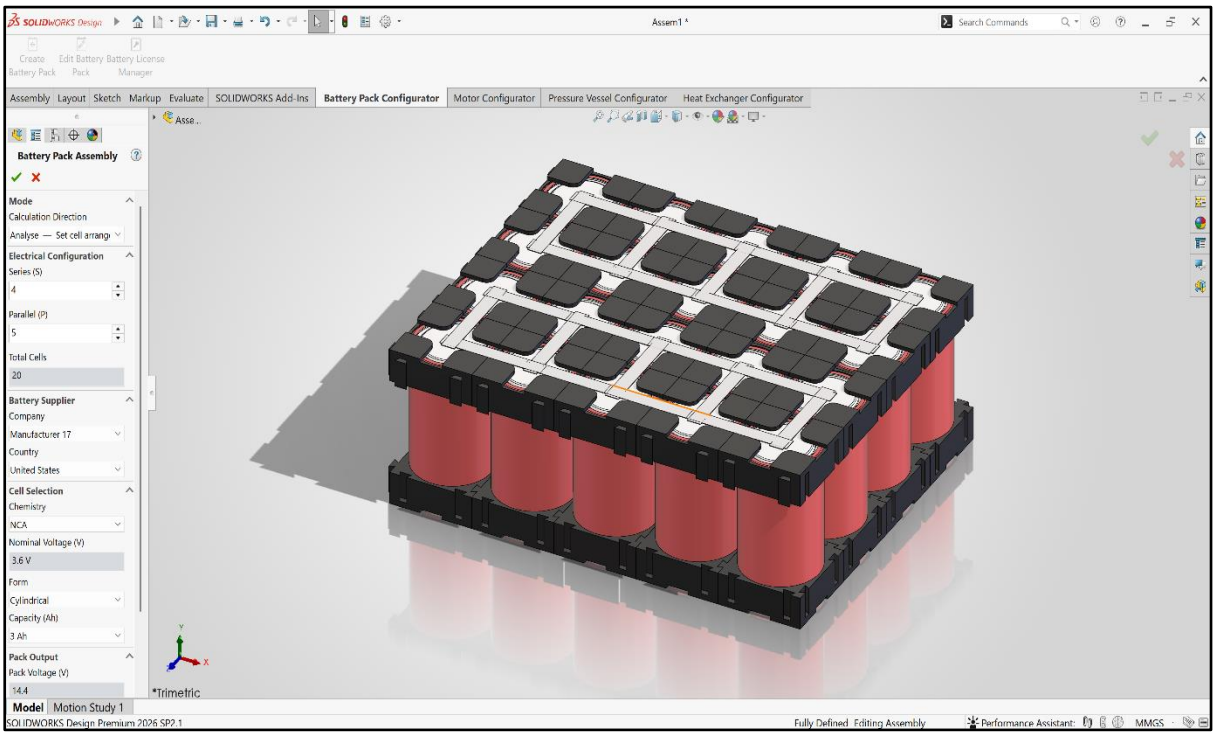
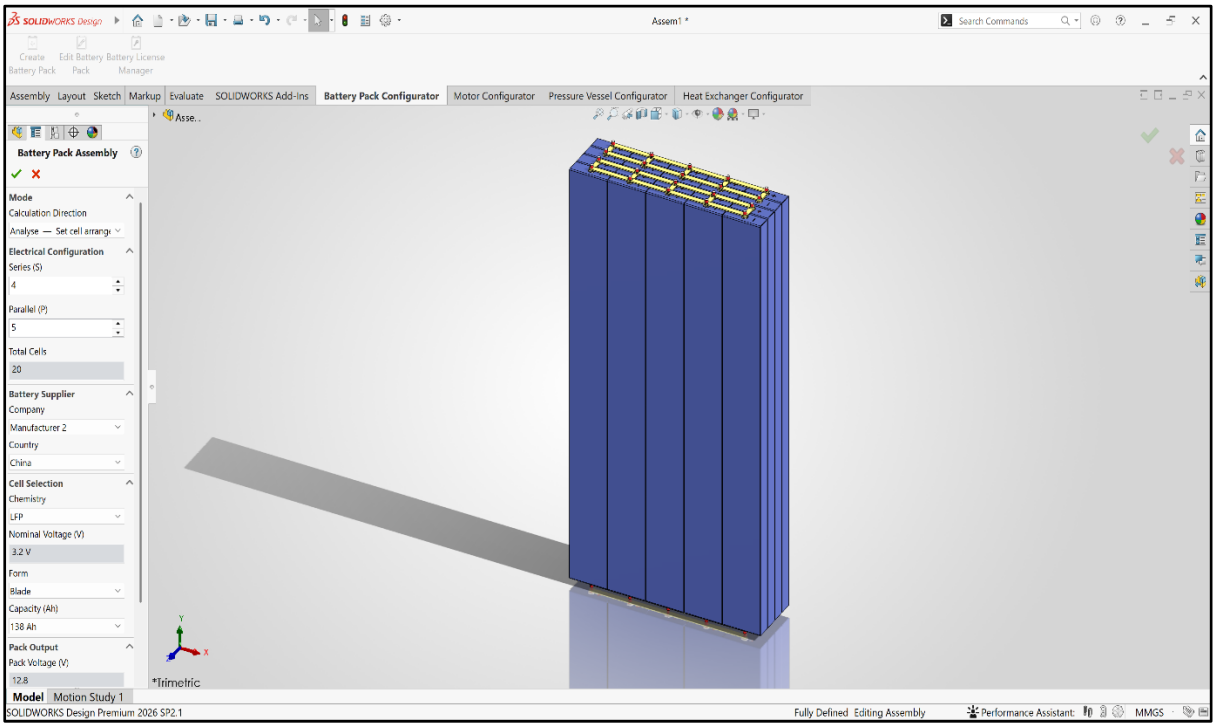
3.4 Additional Features:

1. Battery Pack Design supports **Cylindrical** and **Blade** cells.
2. Cell library is currently inbuilt. Custom cell library may be supported in future.

Cylindrical Cells: -



Blade Cells: -



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