



GEN20883

Do It with Precision: Ignite Your Latent Energy by Creating Smart BOM in AutoCAD Mechanical

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Learning Objectives

- Learn how to create a simple and intelligent BOM for your drawings
- Learn how to quickly add user-defined items in BOM and parts list
- Learn how to use simple formulae to create a custom parts list
- Learn how to create a BOM report to match your company standards

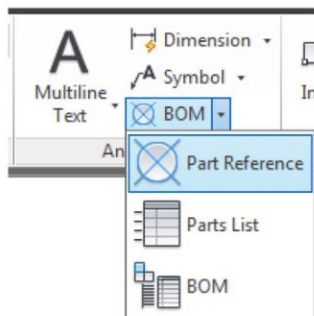
Description

This class helps you to know the precision tools for increasing efficiency and productivity through custom bill of materials and parts lists. In the interactive session, we will look at the things that make you think smartly with AutoCAD Mechanical software's Bill of Materials.

Part 1 - Part references:

In this exercise, we will add part references to store part information.

- Open BOM.dwg. *Some part references have already been added to the drawing.*
- To create a part reference, do the following:
Click Annotate tab > BOM panel > Part Reference drop-down list



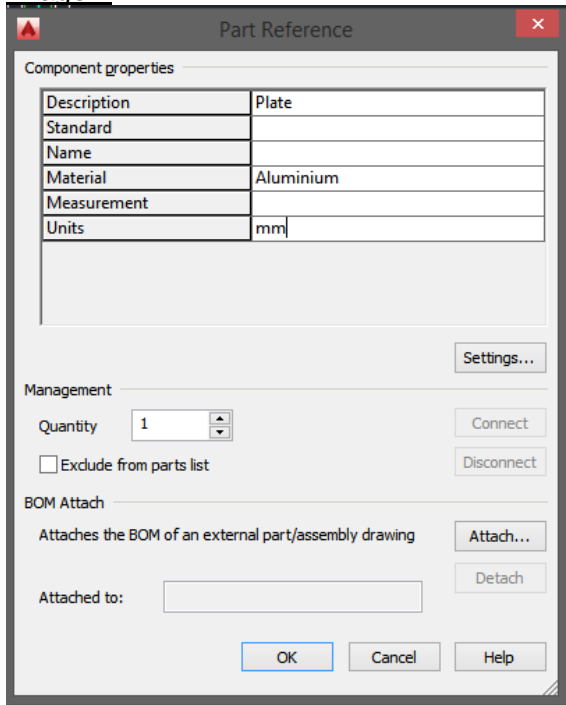
- Select the bottom edge of the part.
- Create Part Reference.



- In the Part Reference dialog box, do the following:

For Description, to change it, click on it and enter Plate & add Material and Units.

Image 1



- To edit part reference, double click on the part reference placed in the drawing.



- Part reference dialog will pop up as shown in Image 1.
- In the Part Reference dialog box, for Description, modify to Plate 1.
- Click OK. It will also update in BOM.
We will verify it at a later part while creating BOM.
- Repeat Create Part reference
- Select no part

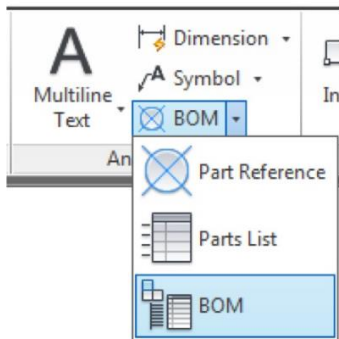
- Place the Part reference in the drawing without selecting any object



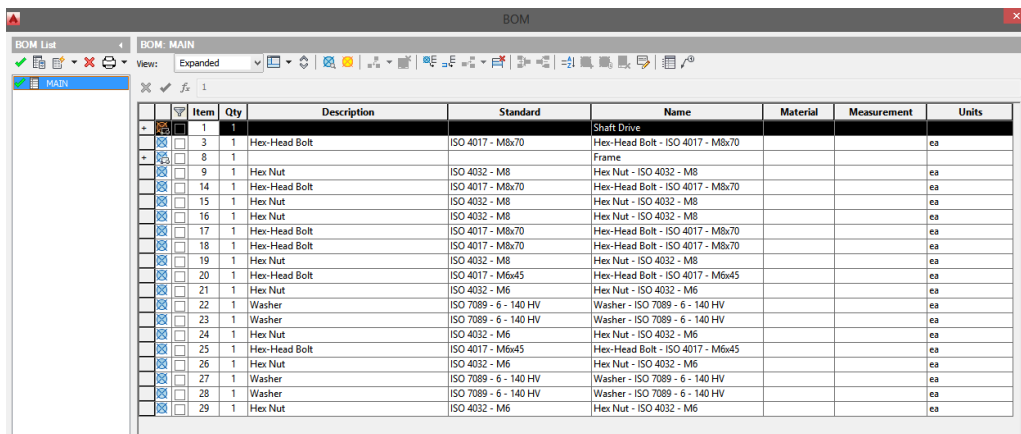
Part 2 – Bill of Materials (BOM):

In this exercise, we will create a simple bill of material with the part reference added before and some additional part information in the drawing.

- Open BOM.dwg.
- To display the BOM dialog box, click Annotate tab > BOM panel > BOM.



- Press ENTER.





Item	Qty	Description	Standard	Name	Material	Measurement	Units
1	1	Shaft Drive					
3	1	Hex-Head Bolt	ISO 4017 - M8x70	Hex-Head Bolt - ISO 4017 - M8x70			ea
8	1	Frame					
9	1	Hex Nut	ISO 4032 - M8	Hex Nut - ISO 4032 - M8			ea
14	1	Hex-Head Bolt	ISO 4017 - M8x70	Hex-Head Bolt - ISO 4017 - M8x70			ea
15	1	Hex Nut	ISO 4032 - M8	Hex Nut - ISO 4032 - M8			ea
16	1	Hex Nut	ISO 4032 - M8	Hex Nut - ISO 4032 - M8			ea
17	1	Hex-Head Bolt	ISO 4017 - M8x70	Hex-Head Bolt - ISO 4017 - M8x70			ea
18	1	Hex-Head Bolt	ISO 4017 - M8x70	Hex-Head Bolt - ISO 4017 - M8x70			ea
19	1	Hex Nut	ISO 4032 - M8	Hex Nut - ISO 4032 - M8			ea
20	1	Hex-Head Bolt	ISO 4017 - M6x45	Hex-Head Bolt - ISO 4017 - M6x45			ea
21	1	Hex Nut	ISO 4032 - M6	Hex Nut - ISO 4032 - M6			ea
22	1	Washer	ISO 7089 - 6 - 140 HV	Washer - ISO 7089 - 6 - 140 HV			ea
23	1	Washer	ISO 7089 - 6 - 140 HV	Washer - ISO 7089 - 6 - 140 HV			ea
24	1	Hex Nut	ISO 4032 - M6	Hex Nut - ISO 4032 - M6			ea
25	1	Hex-Head Bolt	ISO 4017 - M6x45	Hex-Head Bolt - ISO 4017 - M6x45			ea
26	1	Hex Nut	ISO 4032 - M6	Hex Nut - ISO 4032 - M6			ea
27	1	Washer	ISO 7089 - 6 - 140 HV	Washer - ISO 7089 - 6 - 140 HV			ea
28	1	Washer	ISO 7089 - 6 - 140 HV	Washer - ISO 7089 - 6 - 140 HV			ea
29	1	Hex Nut	ISO 4032 - M6	Hex Nut - ISO 4032 - M6			ea

Part 3 – Create user defined items (BOM):

In this exercise, we will add a simple user defined item to the BOM and renumber the BOM items and then remove a user defined item.




To Create a User Defined Item

- Open BOM.dwg
- Click Annotate tab > BOM panel > BOM.
- Press ENTER.
- In the BOM List panel, right-click the BOM to edit
- Select Set current.
-  Icon indicates your current BOM.
- To insert a BOM item above an existing row:
- Click inside the row above which to insert the BOM item.
- In the toolbar, click 
- Add item as below
-
- Click OK until all dialog boxes close.

To renumber a User Defined Item

- Click the Item Number cell below

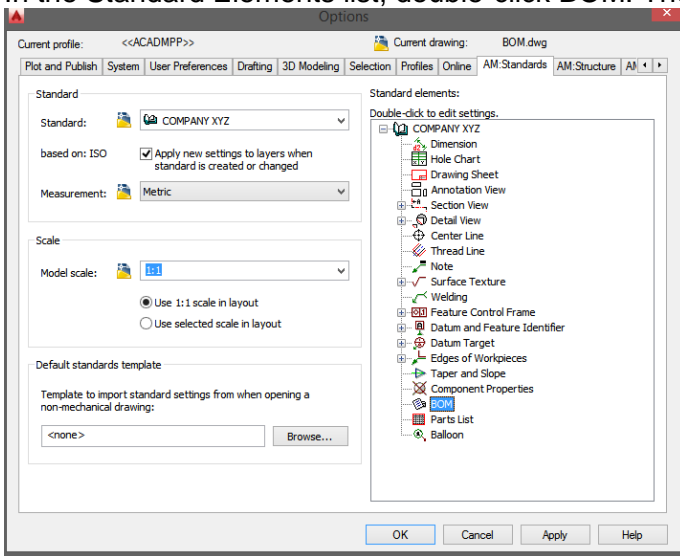
Item	Qty	Description	Standard	Name	Material	Measurement	Units
1	1			Shaft Drive			
3	1	Hex-Head Bolt	ISO 4017 - M8x70	Hex-Head Bolt - ISO 4017 - M8x70			ea

- SHIFT-click the last cell in the range of cells to edit.
- To renumber the entire BOM, click the column header of the Item column.
- In the toolbar, click . The Set Value dialog box is displayed.
- Verify that the Column box shows Item.
- To renumber the rows by specifying the starting number and an increment value:
- In the Start value box, enter the Item Number of the first row in the range.
- In the Step box, enter the increment value.
- Set Start value as 1
- Set Step value as 1
- Click OK until all dialog boxes close.

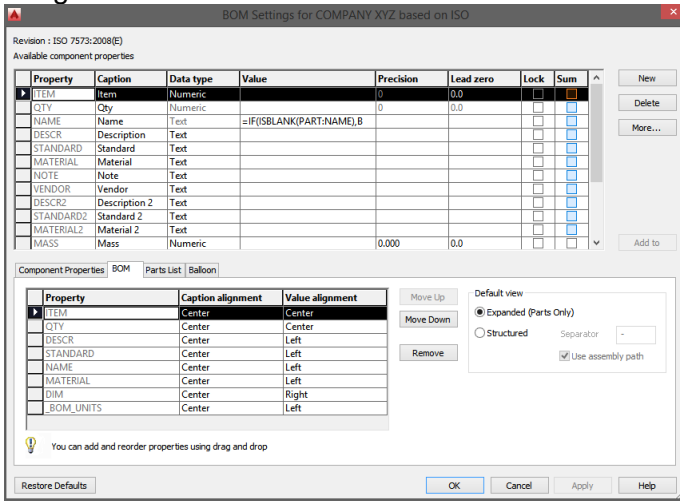
To Create a User Defined Component property

- At the Command prompt, enter AMOPTIONS.
- In the Options dialog box, select the AM: Standards tab.

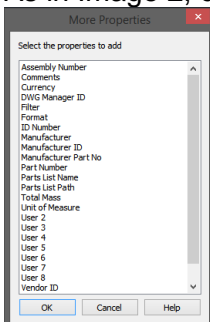
- In the Standard Elements list, double-click BOM. The BOM Settings dialog box is displayed.



- Image 2



- Click New. It will create a user defined component property in last column.
- Add following values to the new row, column by column.
- Use the Move up or Move down buttons to position the property.
- Click OK.
- You can also use existing pre-defined component properties to your BOM.
- As in Image 2, click more and select one of the predefined values – User 1.





- User 1 will be automatically added to the BOM list.
- Add description for User 1 as shown below.
- Click Ok.

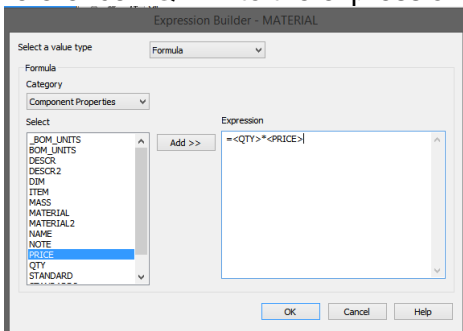
Part 4 – Create a simple formula for user defined items (BOM):

In this exercise, we will add a simple formulae for the user defined item you have created to the BOM and establish a total sum.

- Open BOM.dwg
- Click Annotate tab ► BOM panel ► BOM.
- Press ENTER.
- In the BOM list, Place the cursor in the cell you want to create the formula for.
- In the Formula Bar, click f_x . The Expression Builder dialog box is display

Item	Qty	Description	Standard	Name
1	1	Hex-Head Bolt	ISO 4017 - M8x70	Shaft Drive
3	1	Hex-Head Bolt	ISO 4017 - M8x70	Hex-Head Bolt - ISO 4017 - M8x70
8	1			Frame

- In the Select value type list, select Formula. In the expression box, add references, operators, and functions as required.
- In the Category list, select Function.
- In the Select list, select INT and click Add. The Expression area shows =INT().
- In the Expression area, place the cursor between the brackets.
- In the Category list, select BOM Properties.
- In the Select list, select QTY (quantity) and click Add. The program adds the reference <QTY> to the expression area.



- Type the asterisk character (*) after <QTY>.
- In the Select list, select PRICE and click Add. The formula =INT (<QTY>*<PRICE>) is complete.
- Click OK.

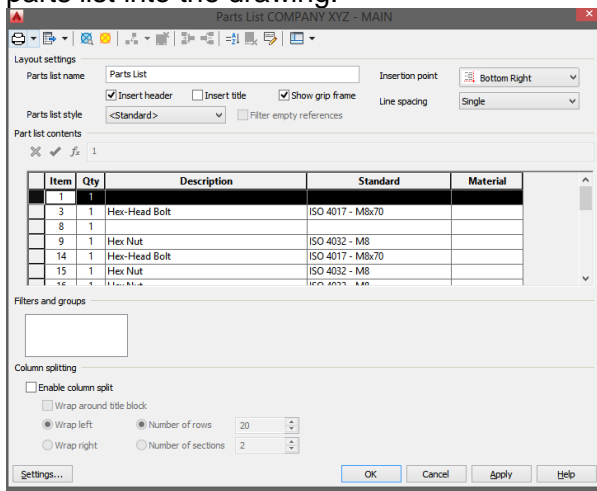
Part 5 – Create a parts list from Smart BOM

In this exercise, we will create a simple parts list from the smart BOM that you have created using previous steps.

- Open BOM.dwg
- Click Annotate tab ► Table panel ► Parts List.



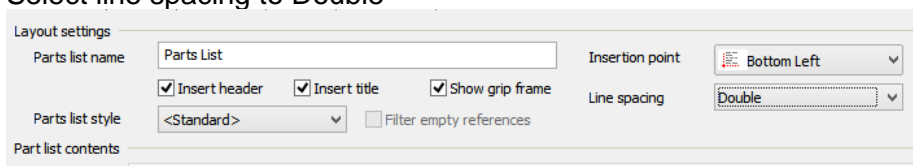
- At the Command prompt, enter MAIN or BOM name
- Click OK. The dialog box closes and a preview of the parts list appears in the drawing area.
- In the drawing area, click to indicate where to place the parts list. The program inserts the parts list into the drawing.



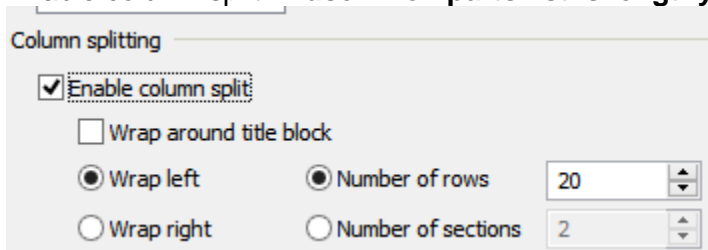
Part 6 – Insert a parts list & add balloon to parts list to create a complete drawing

In this exercise, we will learn how to organize your parts list to the drawing and how to add balloons.

- Open BOM.dwg
- Click Annotate tab ► Table panel ► Parts List.
- At the Command prompt, enter MAIN or BOM name
- Select Insert Title to add name of the parts list
- Select Insertion Point to Bottom left
- Select line spacing to Double



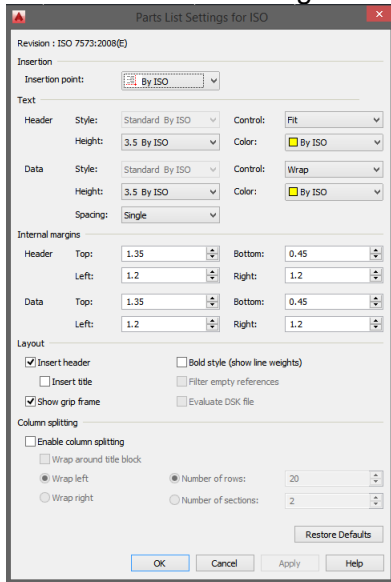
- Enable column split – ***use when parts list is lengthy***




- Click Setting to Modify Parts list Color & Style.



- Click Ok to save Changes.



To Create Balloon

- Click Annotate tab ➤ Balloon panel ➤ Balloons. 
- In the drawing area, select a part reference or component (part or assembly).
- In the drawing area, click to indicate the second point for the balloon leader, and continue until the balloon is in the location you want.
- Press ENTER to place the balloon.
- Press ENTER to end.

Auto Balloon:

- In the Command line type : AMBALLOON
- Select Auto
- Select the view or list of objects in the assembly
- Press Enter

To renumber balloon:

- In the Command line type : AMBALLOON_RENUM
- Select Starting item number – Set to 1
- Enter Increment – Set to 1
- Select all the balloons in the drawing view
- Press Enter

To arrange balloon in one leader:


- In the Command line type : AMBALLOON_COLLECT
- Select a Part reference or all the balloons in the drawing view
- Press Enter

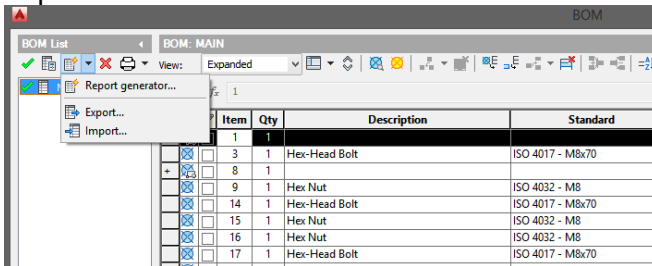
Part 7 – Create a Simple BOM report & do simple modification using report generator

In this exercise, we will learn how to export a BOM data to excel and then import from excel table to BOM.

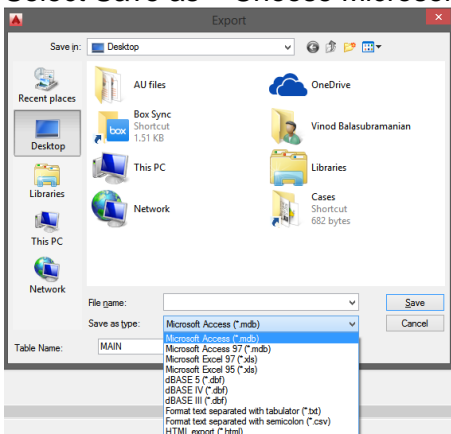
- Open BOM.dwg
- Click Annotate tab ► BOM panel ► BOM.

To Export BOM data

- In the BOM list, select 
- Export BOM to Excel.




- Select Save as – Choose Microsoft Excel 97 (.xls) and save.



To Import BOM data





- In the BOM list, select 
- Import BOM to Excel.
- Choose an existing Excel .XLS file with table.
- Click Open.
- AutoCAD Mechanical will map the table columns with BOM and update the BOM with the excel field values.

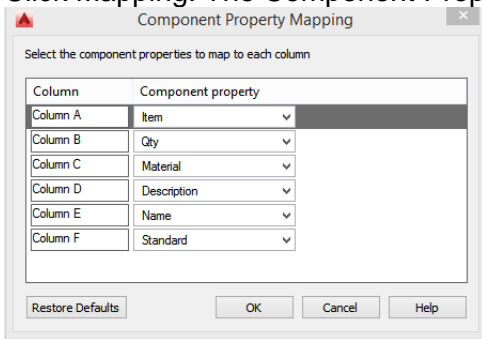
Report Generator – If you would like to customize your report to company requirements like adding logo or changing the report format, you could use this tool.

It helps to generate multiple type of reports.

- BOM list – Lists all the items in the BOM
- Detail list – Lists all parts and assemblies (Part References) that have external BOMs attached to them
- Summary list - Lists all items in the BOM, grouped by Item type

One good example:

- Click the Annotate tab > BOM panel > BOM.
- Press ENTER.
- In the toolbar of the BOM List panel, click.  The Report Generator dialog box is displayed.
- Click . The dialog box expands.
- Click Mapping. The Component Property Mapping dialog box is displayed.



- In the drop-down list beside each column, select the property to display.
- Click OK.

Autodesk BOM List					
#	Part Number	Material	Part Name	Assembly	
				Parent Item	Qty
1					1
2			Recessed Pan Head Screw		1
3			Recessed Pan Head Screw		1

Your AU Expert(s)

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