

BOMs Away! Managing Bills of Materials in AutoCAD

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Bill of Materials

Bill of Materials

What is a BOM?

a List of Things...

The *ingredients* for producing equipment and machinery

The raw material, parts, sub-assemblies, purchased items, and everything else

A BOM provides the list of items engineered, the things to be purchased, and the items that must be manufactured

Communication...

a key communication between departments

the single source of truth

AutoCAD Bill of Materials

A close-up photograph of a raccoon's face. The raccoon has its mouth wide open, showing its pink tongue and teeth. Its eyes are wide and dark, giving it a surprised or excited expression. The background is a soft-focus green, suggesting foliage. Overlaid on the center of the image is the text "Say What Now?" in a large, white, bold, sans-serif font.

Say What Now?

Maybe Sort Of?

AutoCAD Bills of Materials

AutoCAD does not have dedicated BOM tools, but there are enough to fake it.

Like what? How about the Count feature? Or the Data Extraction tools? And Blocks with attributes are essentially the same as 3D models with meta-property data.



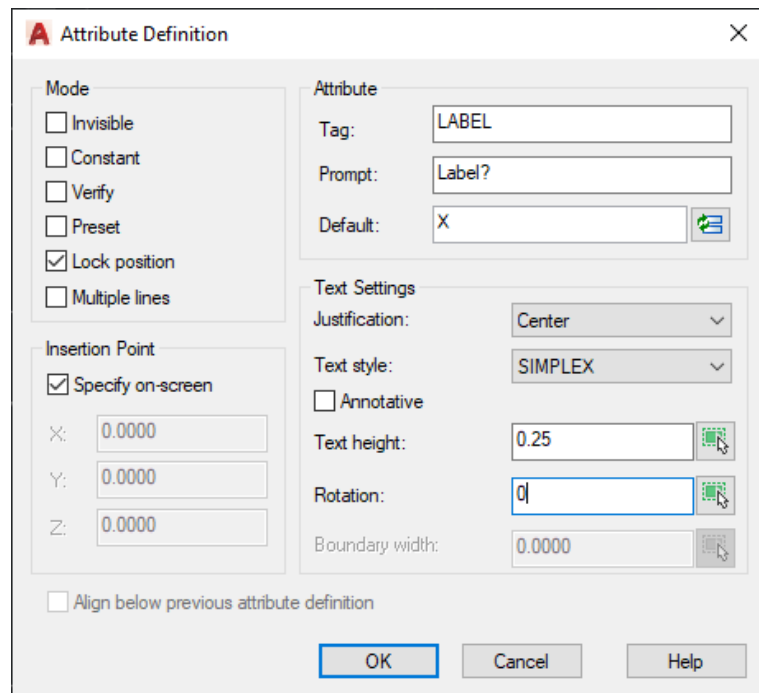
Blocks & Attributes

AutoCAD Blocks

With Attributes

AutoCAD Blocks group objects into a single entity

Attributes are variable-text-metadata



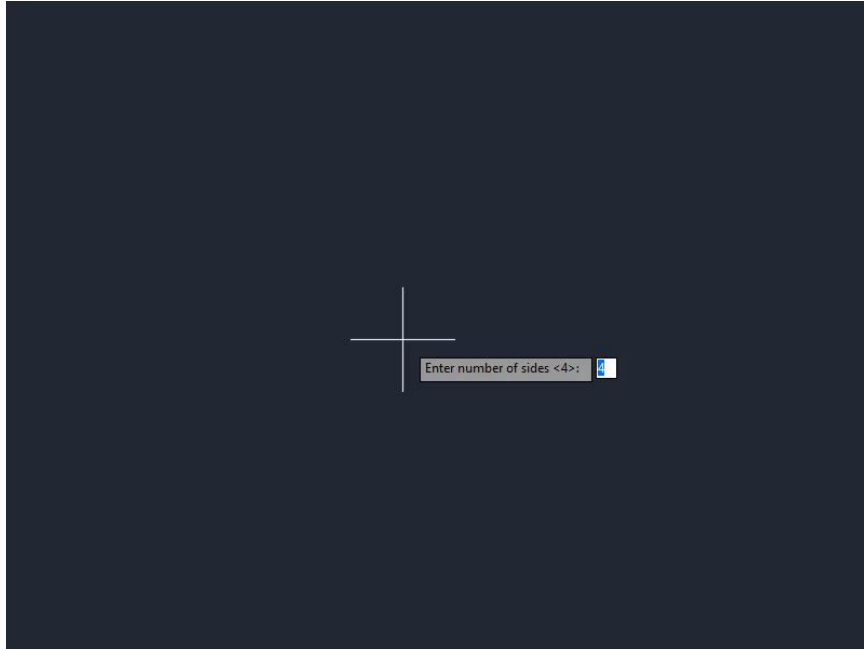
The screenshot shows the 'Attribute Definition' dialog box in AutoCAD. The dialog is titled 'Attribute Definition' with a red 'A' icon and a close button. It is divided into several sections:

- Mode:** Contains checkboxes for 'Invisible', 'Constant', 'Verify', 'Preset', 'Lock position' (checked), and 'Multiple lines'.
- Insertion Point:** Contains a checked 'Specify on-screen' checkbox and three input fields for X, Y, and Z coordinates, all set to '0.0000'.
- Attribute:** Contains input fields for 'Tag' (set to 'LABEL'), 'Prompt' (set to 'Label?'), and 'Default' (set to 'X').
- Text Settings:** Contains a 'Justification' dropdown set to 'Center', a 'Text style' dropdown set to 'SIMPLEX', an unchecked 'Annotative' checkbox, a 'Text height' input field set to '0.25', a 'Rotation' input field set to '0', and a 'Boundary width' input field set to '0.0000'. Each of the last three fields has a small icon to its right.

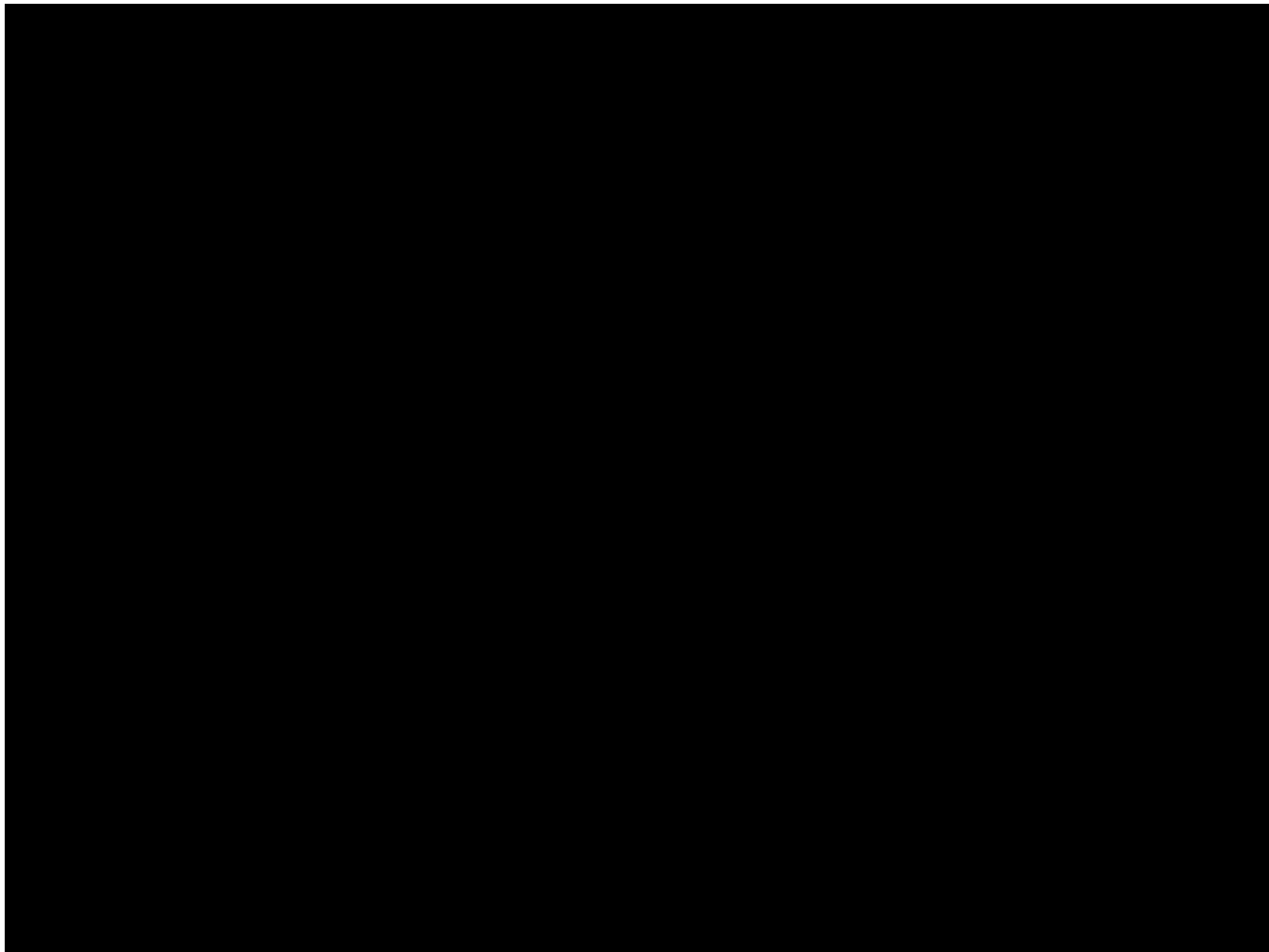
At the bottom of the dialog, there is an unchecked checkbox labeled 'Align below previous attribute definition' and three buttons: 'OK', 'Cancel', and 'Help'.

AutoCAD Blocks

Building Parts



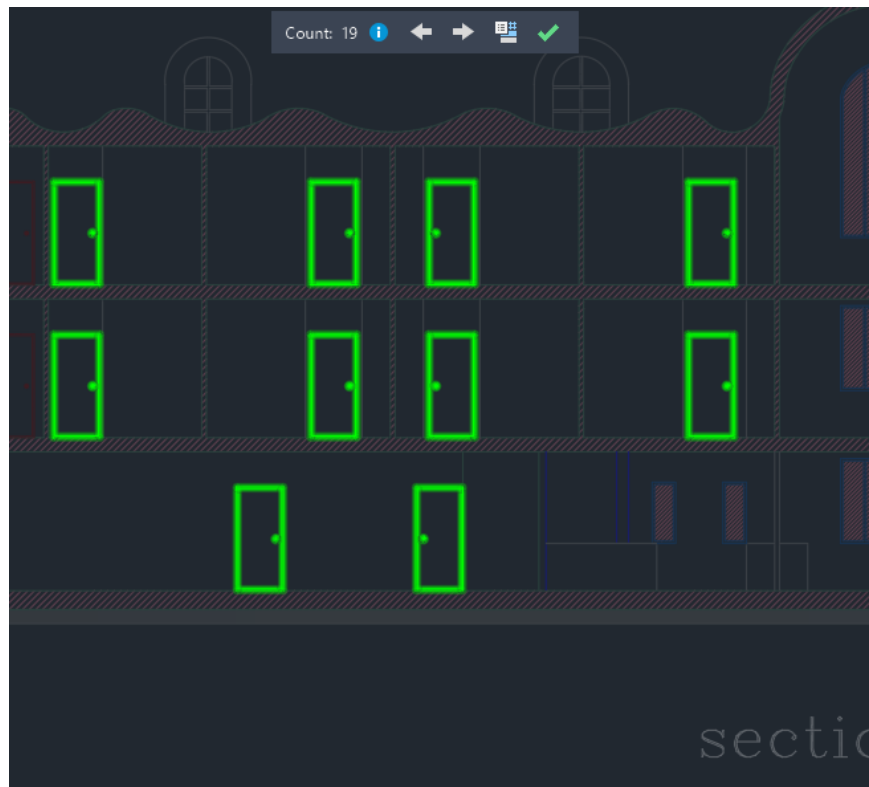
Count



Using Count to count the number of like objects in a drawing

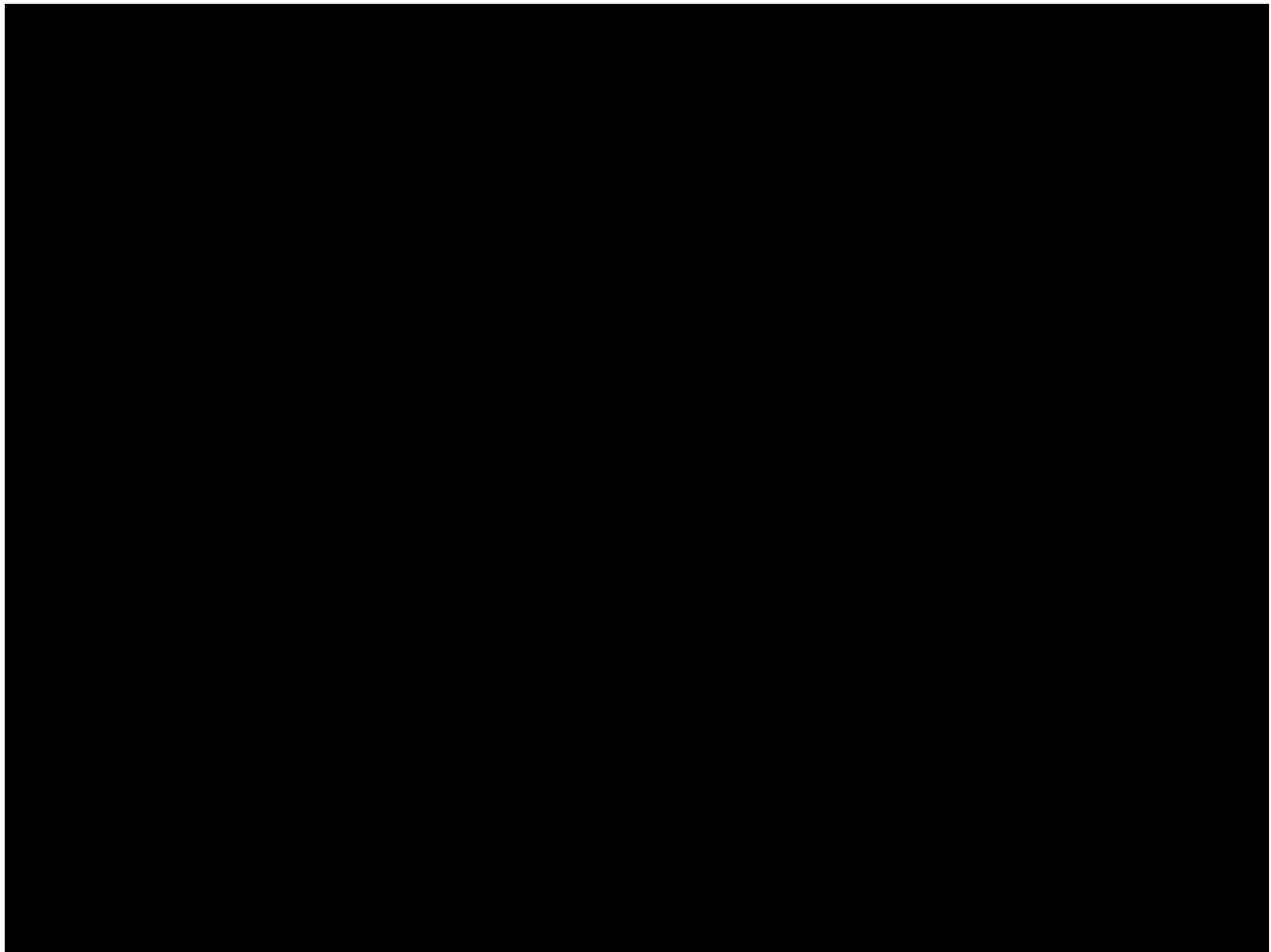
Count

Blocks



A screenshot of a software interface showing a list of counted blocks. The interface includes a search bar and a table with columns for Name and Count. The list contains various architectural elements and their corresponding counts.

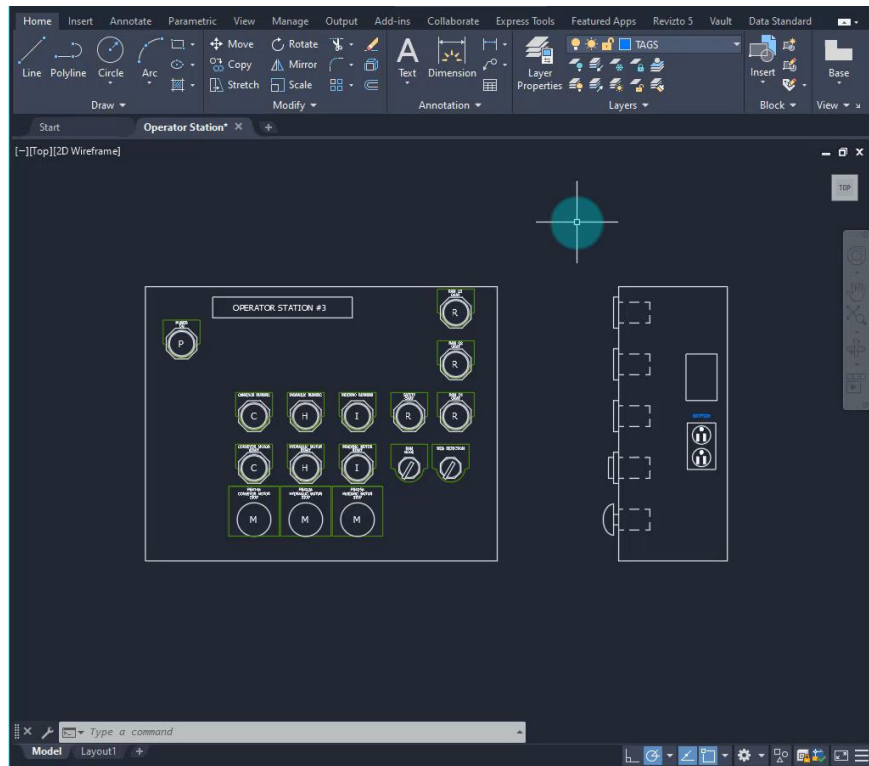
Name	Count
moshabak1	462
+ giyah sabz	423
sit amfi	198
BMW	129
- DR100	...
0	12
column	4
wall	79
DR80	89
win .5	87
tree 10	83



Using Count to count the number of blocks in a drawing

Count

Blocks with Attributes



Item	Count
PBLT3G:C_LITTLEFUSE_9023	2
PBLT3G:H_LITTLEFUSE_9245	2
PBLT3G:I_LITTLEFUSE_9023	2
PBLT3G:P_SCHURTER_3-101-401	1
PBLT3G:R_TE Connectivity_PBS9MZRES	4
PBPB3M:TE Connectivity_AV1920P712Q04	3
PBSS2KM:95062-17_LITTLEFUSE	2

Data Extraction

Data Extraction

AutoCAD Bills of Materials

This wizard extracts information from objects

- Quickly filter only the blocks with attributes
- Adjust display names to merge like objects
- With changes to the drawing use Update All Data Links to update the extraction and associated tables



Data Extraction - Select Properties (Page 4 of 8)

The following properties were found based on the objects you selected.

Select the properties you want to extract.
(Explore the right-click menu for additional options.)

Properties		
Property	Display Name	Category
<input type="checkbox"/> ASSYCODE	ASSYCODE	Attribute
<input checked="" type="checkbox"/> DESC	DESC	Attribute
<input type="checkbox"/> ILLUMINATED	ILLUMINATED	Attribute
<input type="checkbox"/> LABEL	LABEL	Attribute
<input checked="" type="checkbox"/> LOC	LOC	Attribute
<input checked="" type="checkbox"/> MFG	MFG	Attribute
<input checked="" type="checkbox"/> MFG#	MFG#	Attribute
<input type="checkbox"/> TYPE	TYPE	Attribute

Category filter
☐ 3D Visualization
☒ Attribute
☐ Drawing
☐ General
☐ Geometry
☐ Misc

< Back Next > Cancel

Data Extraction - Select Objects (Page 3 of 8)

Select the objects to extract data from:

Objects		
Object	Display Name	Type
<input type="checkbox"/> NPAB8TA	NPAB8TA	Block
<input type="checkbox"/> NPAB8TSR	NPAB8TSR	Block
<input checked="" type="checkbox"/> PBLT3G	PBLT3G	Block
<input checked="" type="checkbox"/> PBPB3M	PBPB3M	Block
<input checked="" type="checkbox"/> PBSS2KM	PBSS2KM	Block
<input type="checkbox"/> WD_M	WD_M	Block
<input type="checkbox"/> WD_PNLM	WD_PNLM	Block
<input type="checkbox"/> WD_PTAG	WD_PTAG	Block

Display options
☐ Display all object types ☒ Display blocks with attributes only
☒ Display blocks only ☒ Display objects currently in-use only
☐ Display non-blocks only

< Back Next > Cancel

Data Extraction - Refine Data (Page 5 of 8)

In this view you can reorder and sort columns, filter results, add formula columns, and create external data links.

DESC	Count	LOC	MFG	MFG#
16MM METAL RING ILUM RED/GRE...	1	MAIN	SCHURTER	3-101-401
POWER LED BLUE 12V	3	MOTOR	TE Connectivity	AV1920P712Q04
PUSHBUTTON	4	LOAD	TE Connectivity	PBS9MZRES
SW MOM NO	4	LOAD	LITTLEFUSE	9023
SW P-P MOM NO 2POS CAP	2	LOAD	LITTLEFUSE	9245
SW ROT 2POS SEALED KNOB	2	INTERMEDIATE	95062-17	LITTLEFUSE

☒ Combine identical rows
☒ Show count column
☐ Show name column

[Link External Data...](#)
[Sort Columns Options...](#)
[Full Preview...](#)

< Back Next > Cancel

Home Insert Annotate Parametric View Manage Output Add-ins Collaborate Express Tools Featured Apps Vault Data Standard

Multiline Text: Standard, Find text, 0.2000, Text

Dimension: Standard, Use Current, Linear, Quick, Continue, Dimensions

Centerline Mark, Centerline, Multileader, Add Leader, Remove Leader, Leaders

Table, Extract Data, Link Data, Tables

Wipeout, Revision Cloud, Markup

Add Current Scale, Scale List, Annotation Scaling

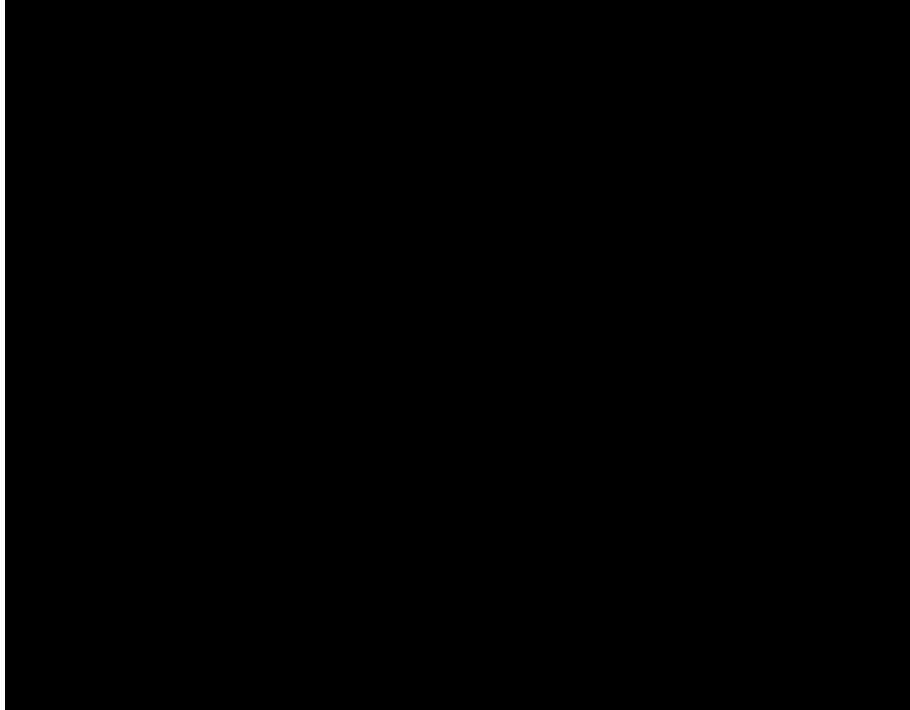
Start Operator Station X

[--][Top][2D Wireframe]

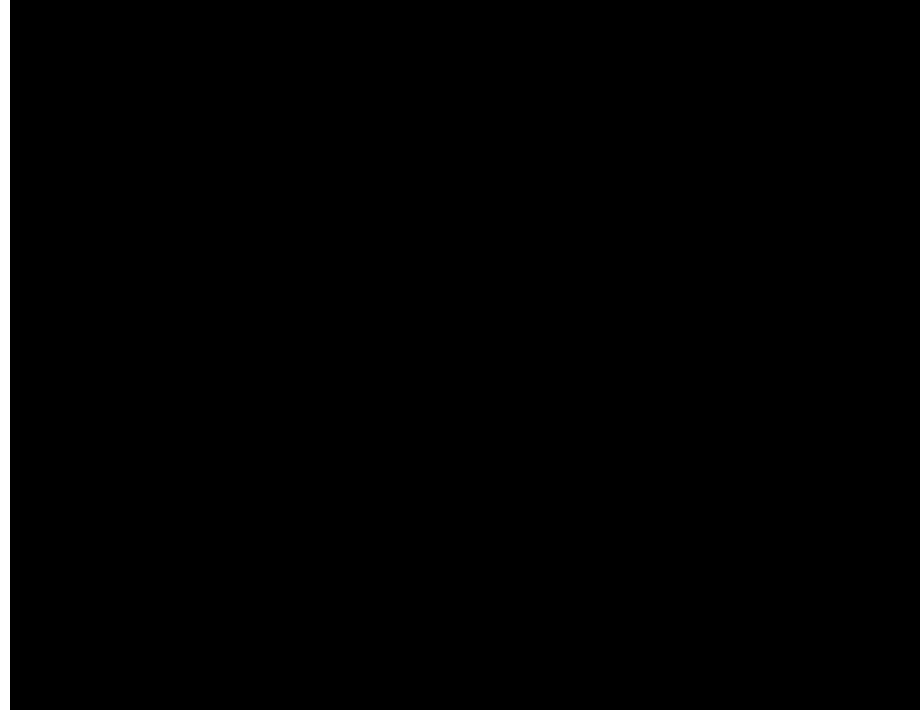


Ballooning

AutoCAD Bills of Materials



Adding an Item Column



Adding Balloons and Callouts

Drawings, Vault, and Items

AutoCAD Bills of Materials

You can manage AutoCAD drawings with Autodesk Vault.

However, AutoCAD drawings do not lend themselves to items and Vault will not extract a bill of materials, regardless the drawing's contents.



Sharing with Others

AutoCAD Bills of Materials

- Viewing the drawing (and the inserted table)
- Export the table
- Data extract to a spreadsheet



The Verdict...

AutoCAD Bills of Materials

AutoCAD does provide basic bill-of-material-like-tools for the listing of the components represented in your drawings... if you use blocks with attributes!

However:

- the setup of blocks could be time-consuming
- no eloquent method of ballooning
- only a single view of the BOM
- no method to share with other systems

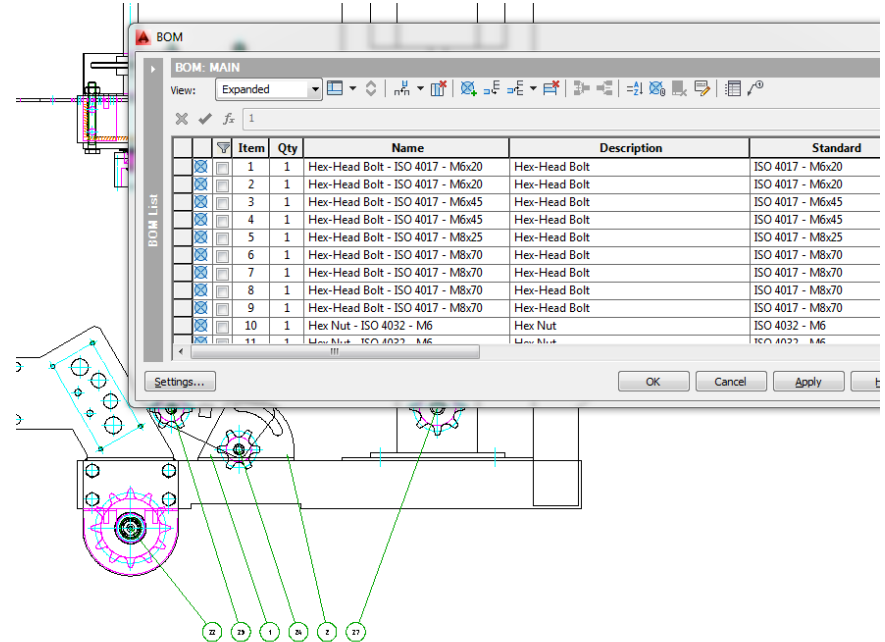


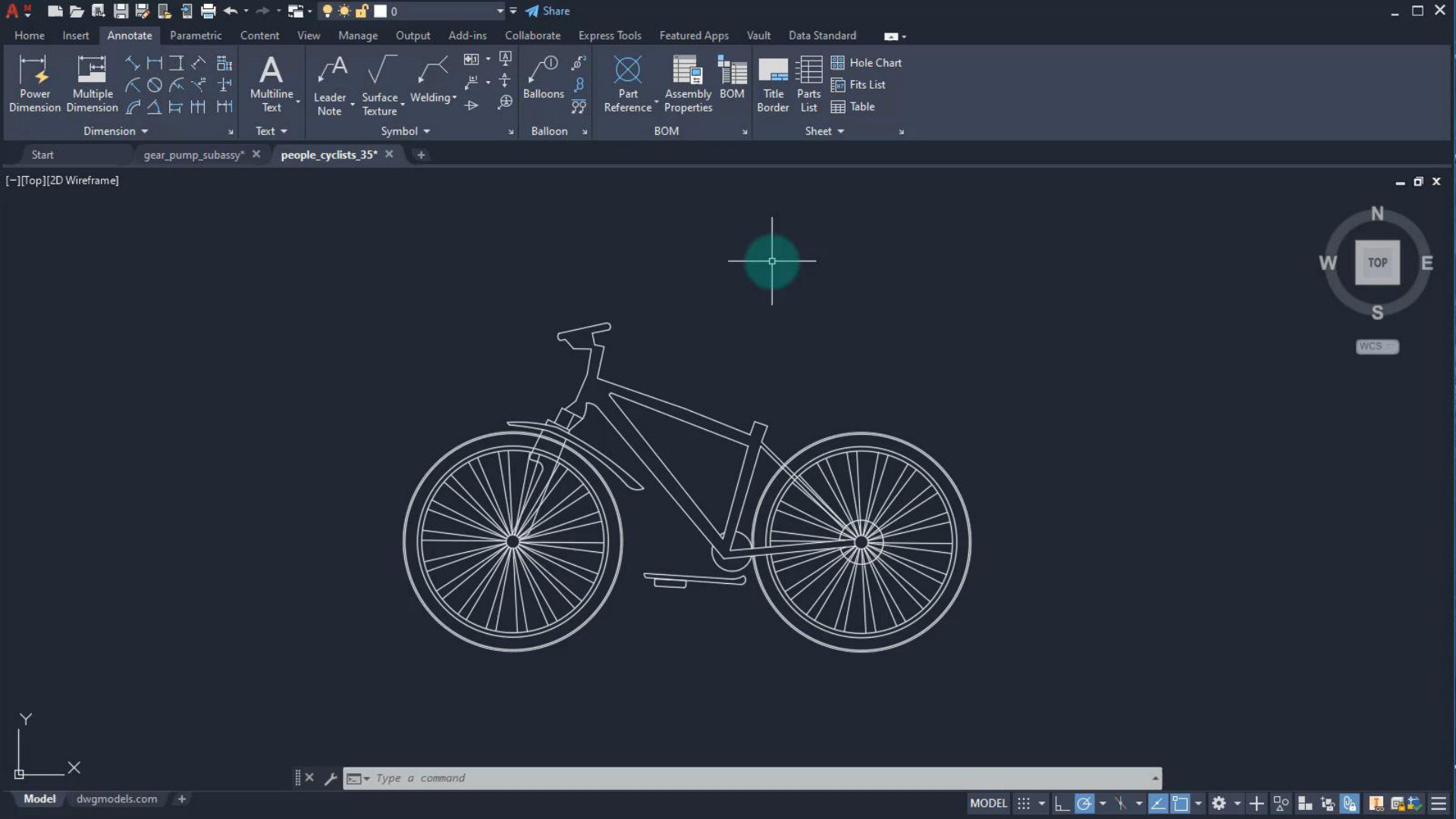
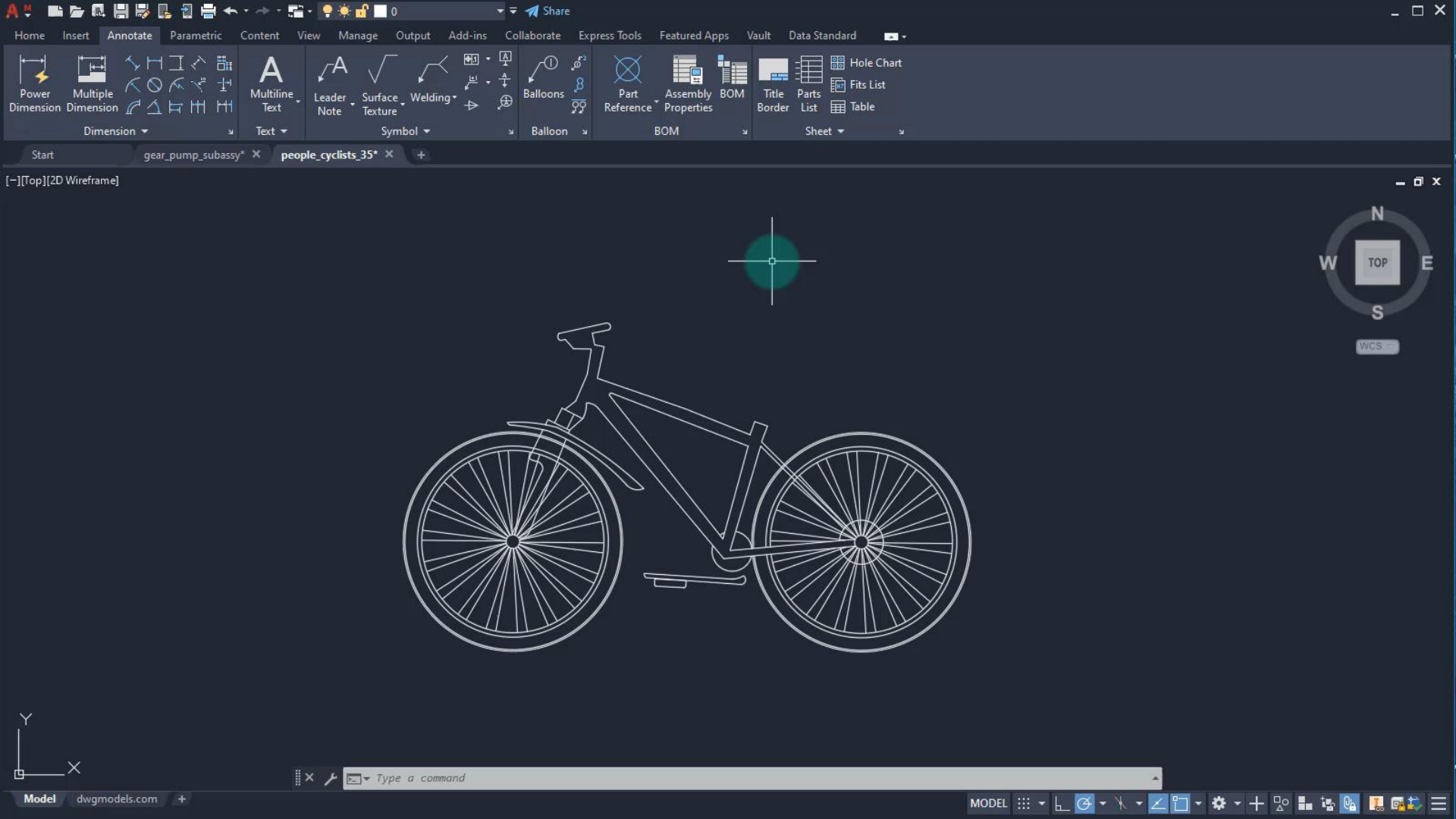
AutoCAD Mechanical BOM

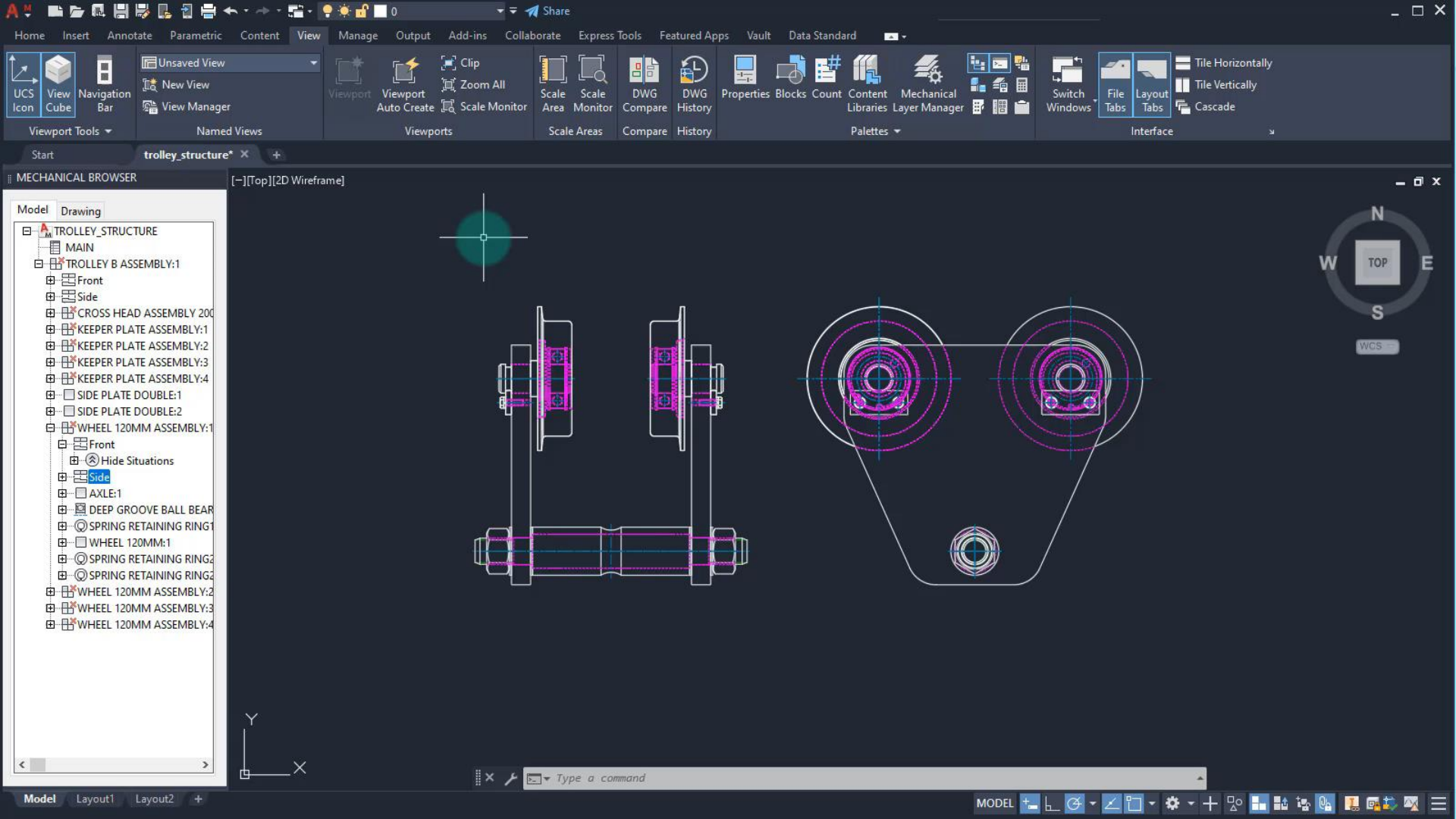
AutoCAD Mechanical

Extending AutoCAD

- A member of AutoCAD One (you might already have access)
- **Part References** hold the *metadata*
- **Bill of Materials** is a collection of Part References
- Create **Balloons** from the Part References
- Insert a **Parts List** into the drawing, a representation of the BOM

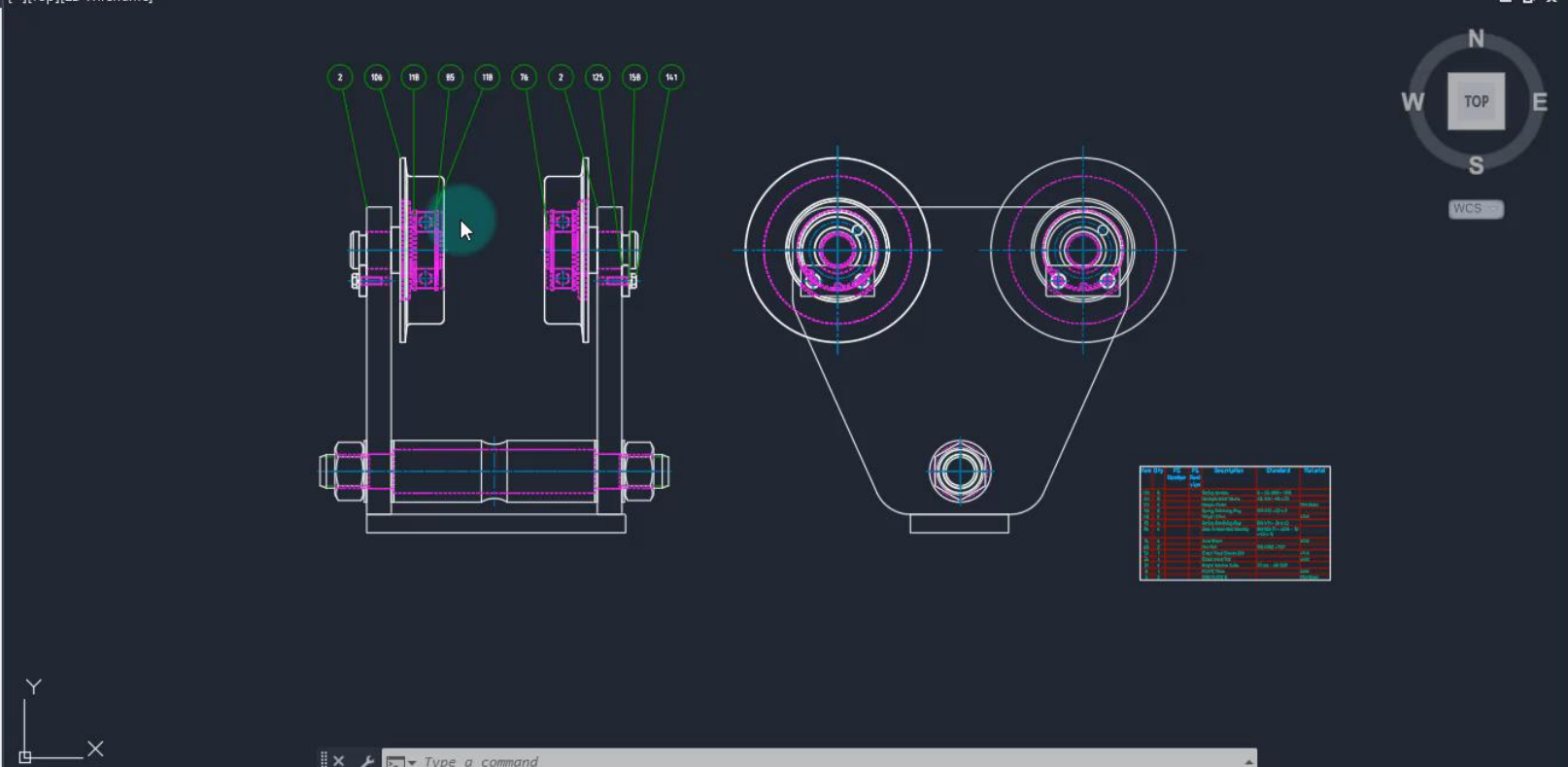






Vault and Beyond

- Model Drawing
- TROLLEY_STRUCTURE
 - MAIN
 - TROLLEY B ASSEMBLY:1
 - Front
 - Side
 - CROSS HEAD ASSEMBLY 200
 - KEEPER PLATE ASSEMBLY:1
 - KEEPER PLATE ASSEMBLY:2
 - KEEPER PLATE ASSEMBLY:3
 - KEEPER PLATE ASSEMBLY:4
 - SIDE PLATE DOUBLE:1
 - SIDE PLATE DOUBLE:2
 - WHEEL 120MM ASSEMBLY:1
 - Front
 - Hide Situations
 - Side
 - AXLE:1
 - DEEP GROOVE BALL BEAR
 - SPRING RETAINING RING1
 - WHEEL 120MM:1
 - SPRING RETAINING RING2
 - SPRING RETAINING RING2
 - WHEEL 120MM ASSEMBLY:2
 - WHEEL 120MM ASSEMBLY:3
 - WHEEL 120MM ASSEMBLY:4
 - BASE PLATE:1
 - SIDE
 - FRONT



Vault Integration

To Vault and Beyond!

- Built-in **Export**
- **CoolOrange**
- **Qbuild Software**
- **Jitterbit**



The background features four abstract, dark, metallic-looking geometric shapes in the corners, resembling stylized computer monitors or architectural elements. They are arranged symmetrically, with two in the top corners and two in the bottom corners, framing the central text.

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