MA 1923
Autodesk® AutoCAD® Mechanical: Top 10 Productivity Tools

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AUTODESK® AUTOCAD® MECHANICAL 2014

AutoCAD Mechanical: Top 10 Productivity Tools

Class summary

AutoCAD Mechanical design software offers many drawing enhancements beyond traditional Autodesk® AutoCAD® software. Many of these productivity tools offer immediate benefits to manufacturing designers currently using AutoCAD. From standards management to documenting Autodesk® Inventor® 3D CAD software models, this class promotes 10 of the best productivity tools available in AutoCAD Mechanical

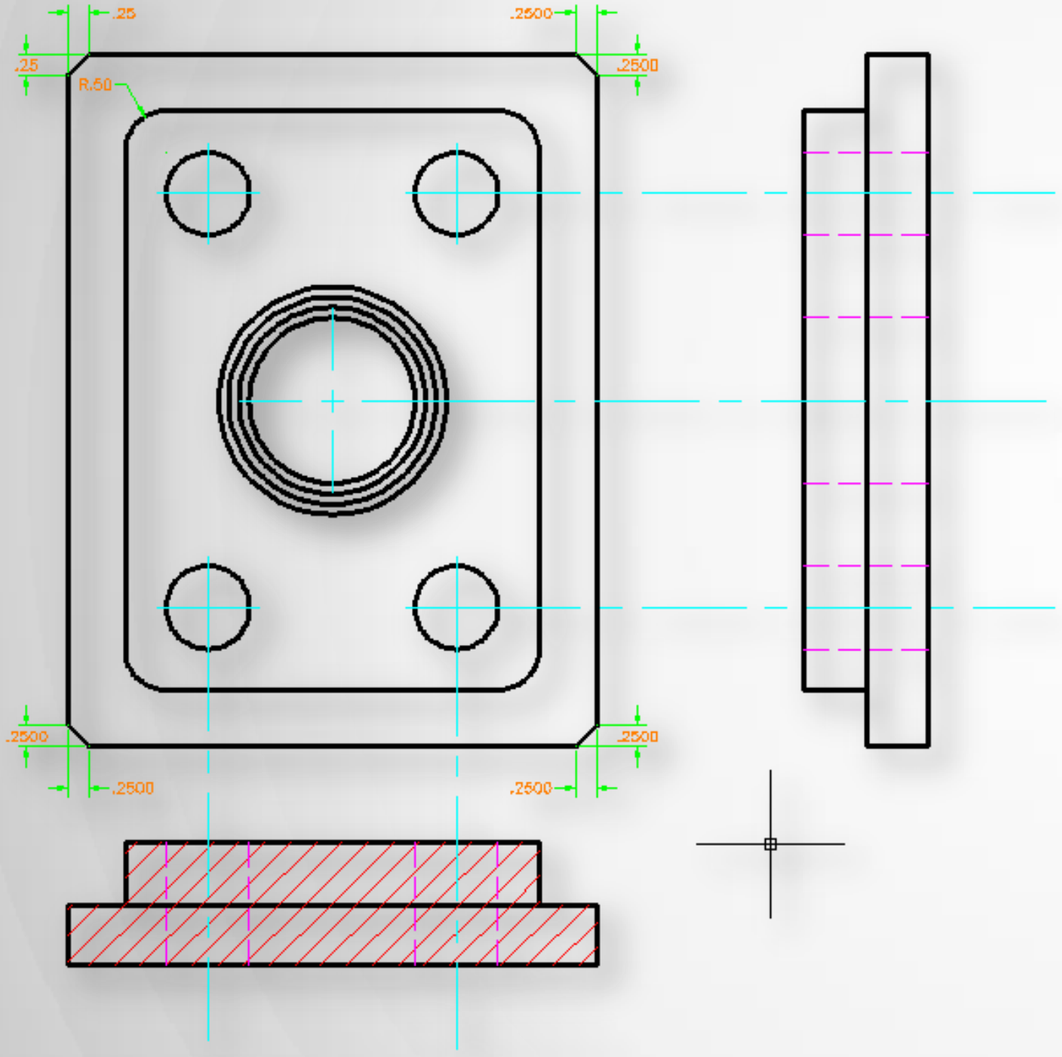
Key learning objectives

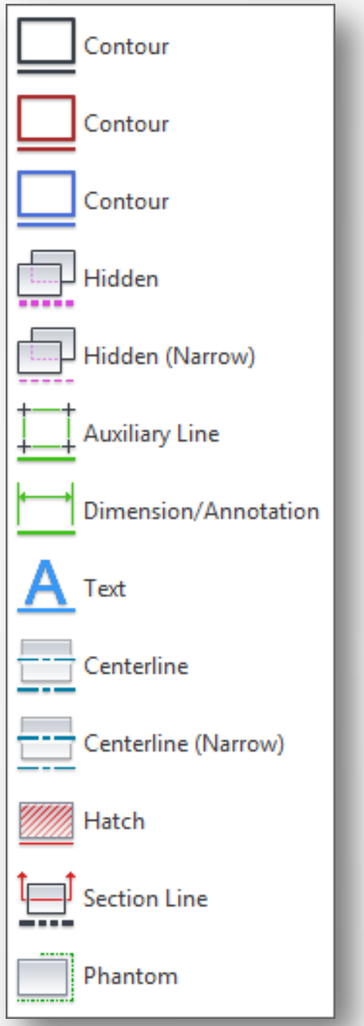
At the end of this class, you will be able to:

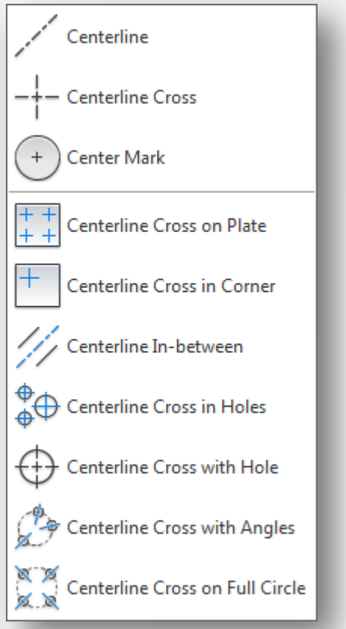
- Describe the basics of AutoCAD Mechanical
- List and describe AutoCAD Mechanical productivity tools
- Use productivity tools for basic CAD practices
- Use productivity tools for documenting 3D designs

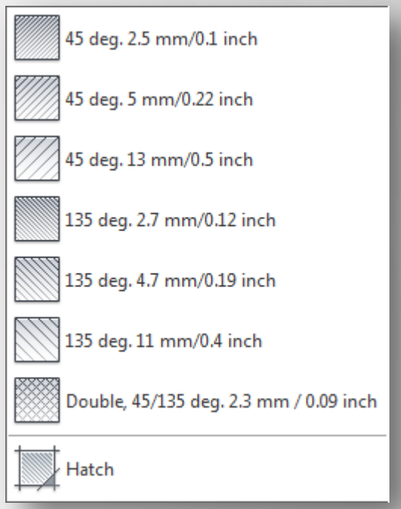
AutoCAD Mechanical:
Top 10 Productivity Tools

#1 - Mechanically Enhanced Commands



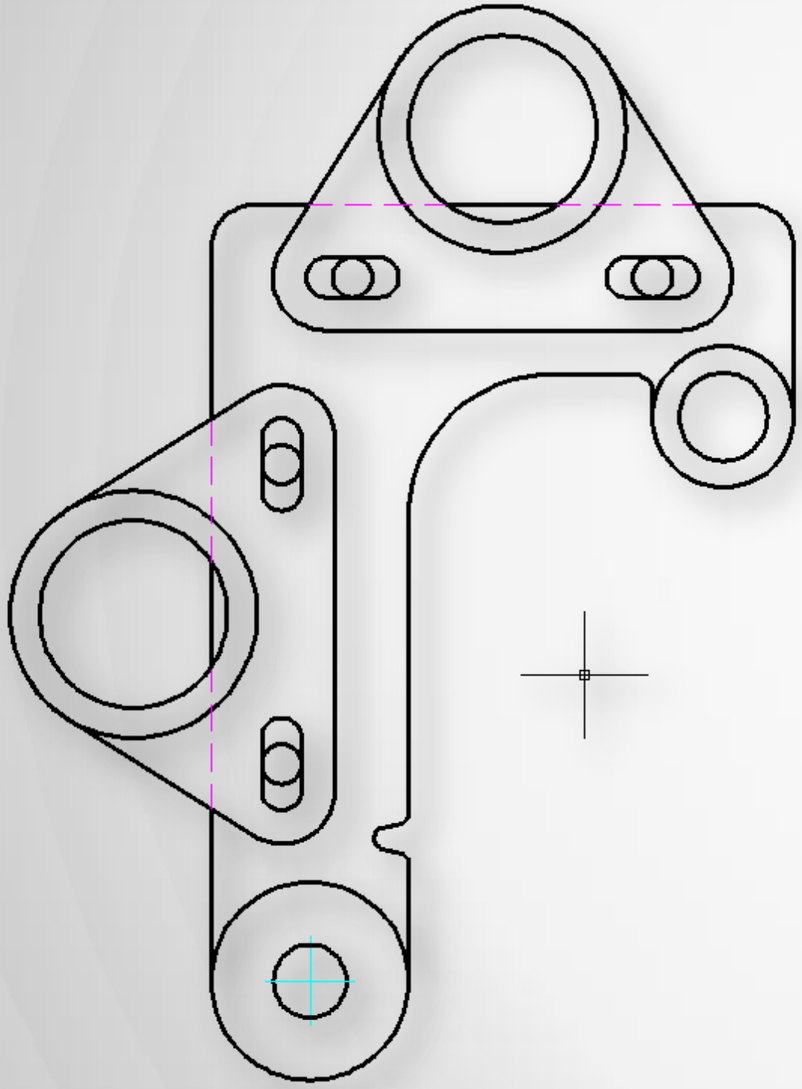


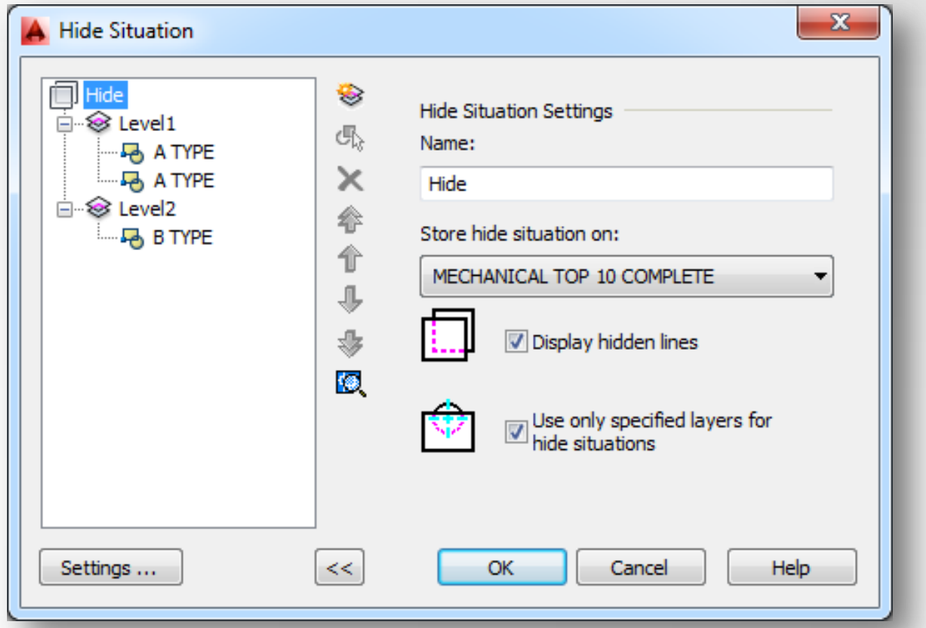




- Centerlines
- Enhanced Rectangles
- Mechanical Hatches
- Construction Lines
- Predefined Linetypes
- Enhanced Fillet / Chamfer
- Multiple Offset

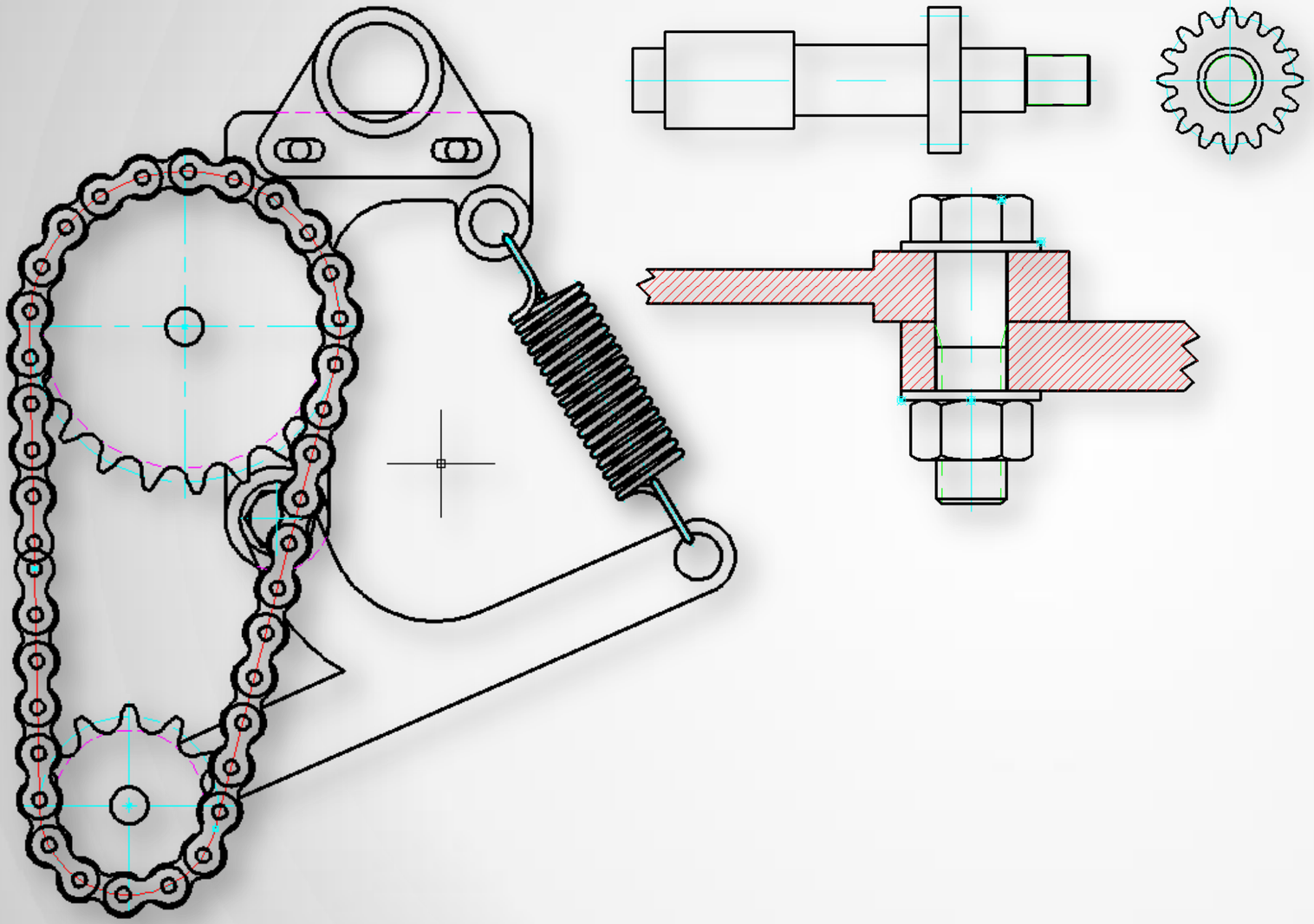
#2 - Associative Hide

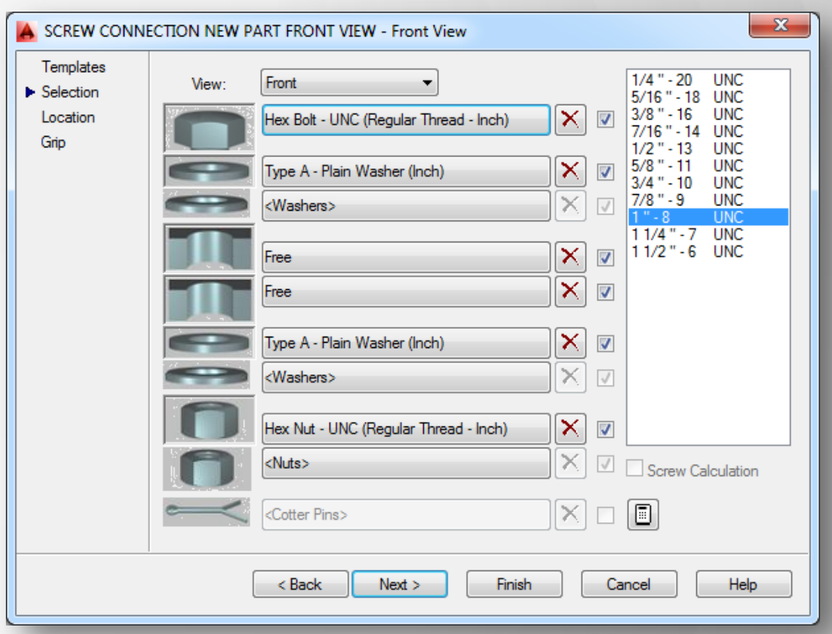




- Select the Foreground Object
- Choose your Hidden Line Representation
- Click OK

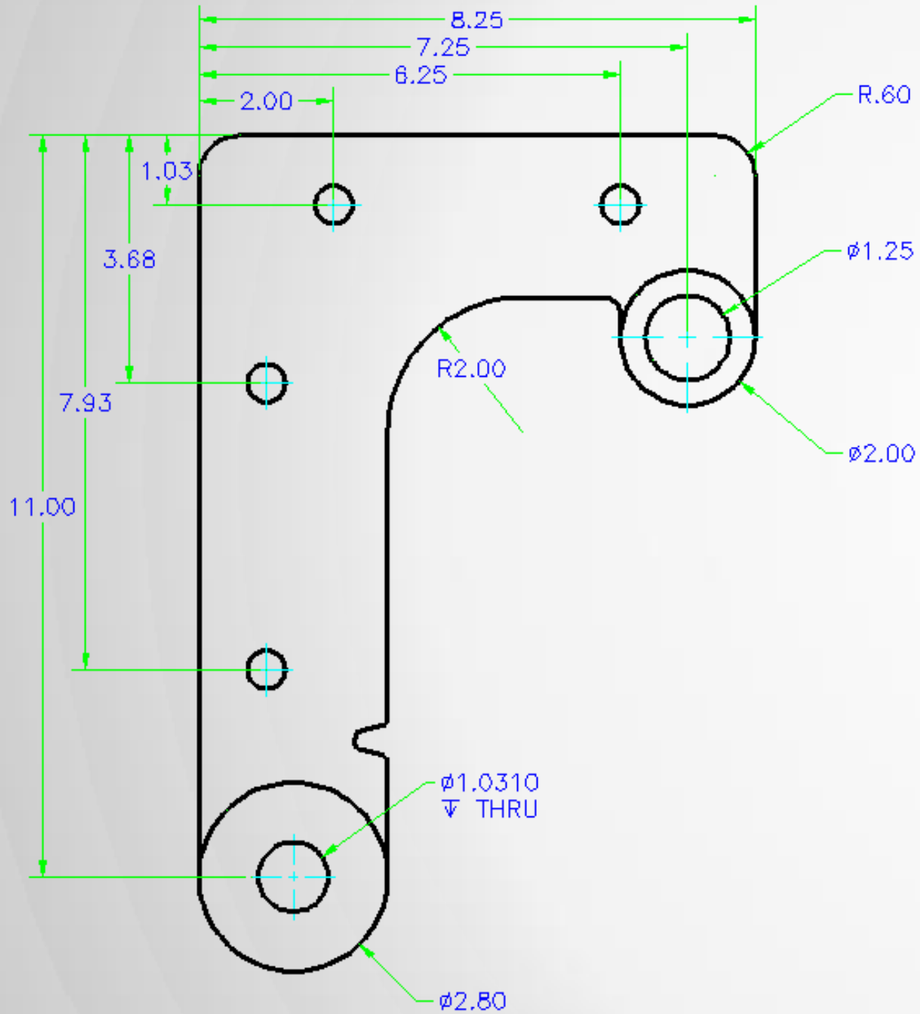
#3 - Mechanical Content (2D)

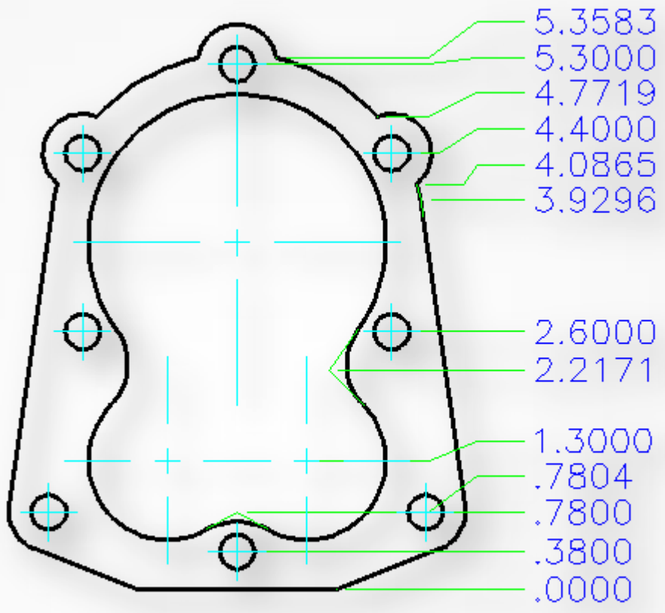


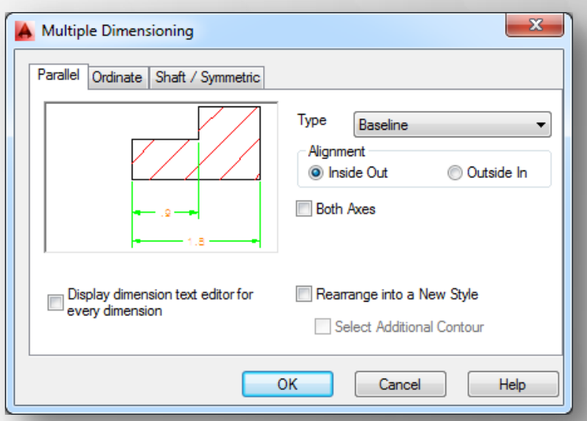


- Fasteners
- Holes
- Sprockets / Pulleys
- Chains
- Shafts
- Springs

#4 – Power Dimensions

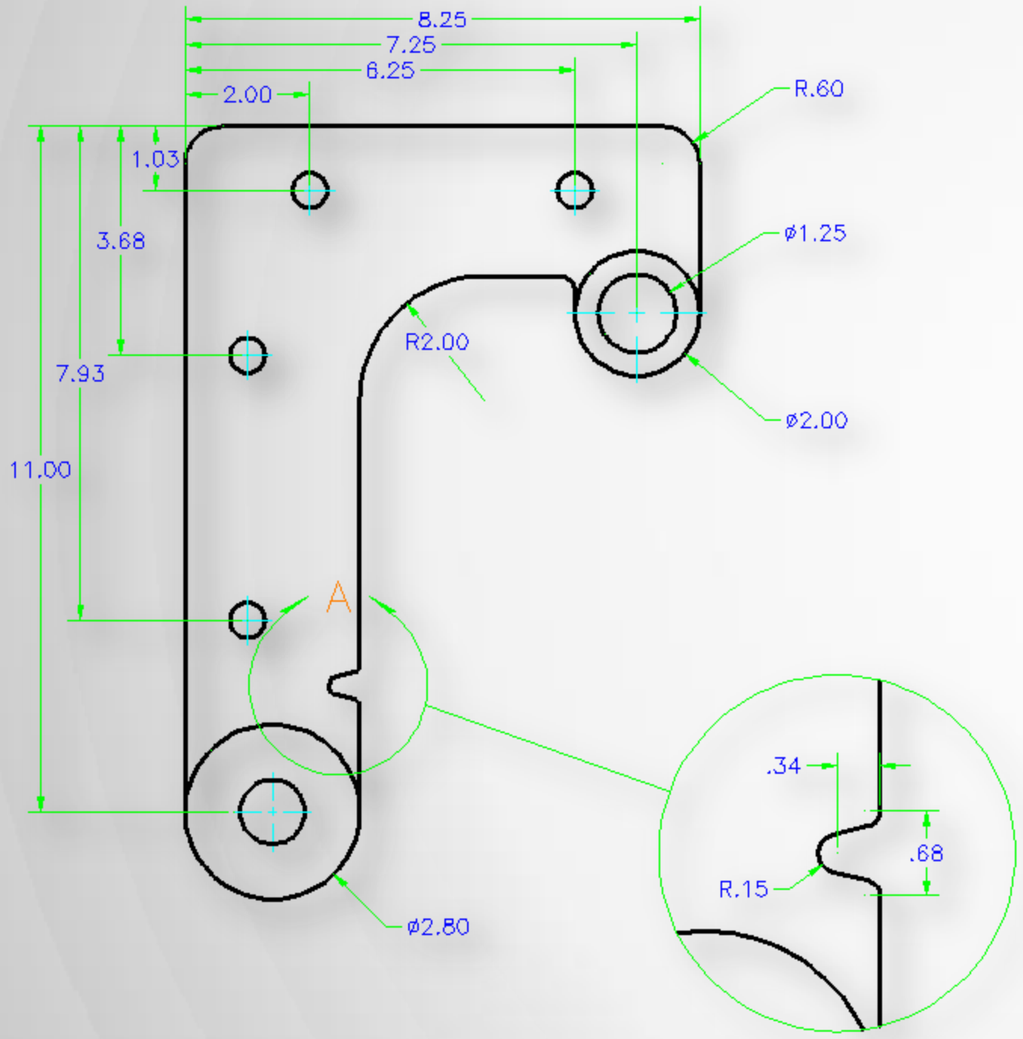


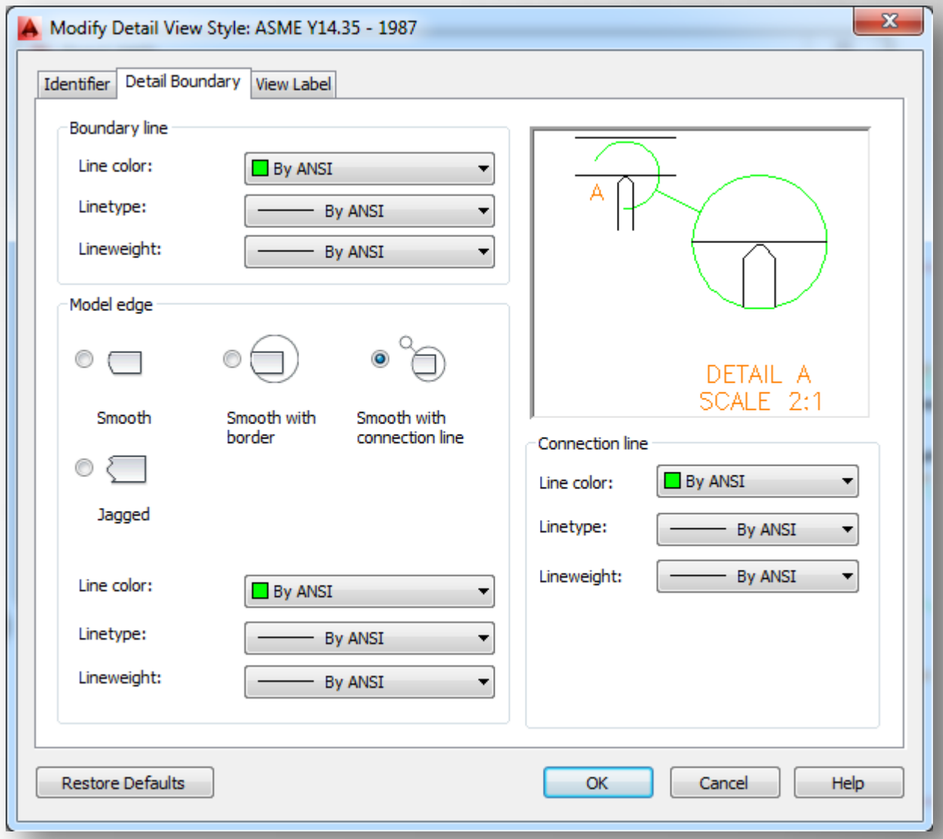




- One Dimension Command
- Multi-Dimension
- Automatic Layers
- Mechanical Tolerances
- Dual Dimensions
- Inspection Dimensions

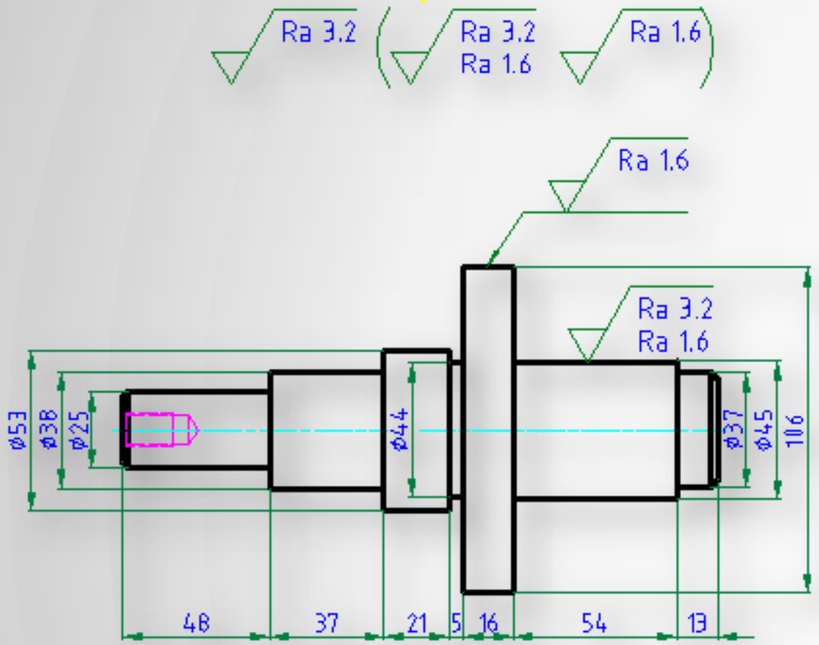
#5 – Detail Views

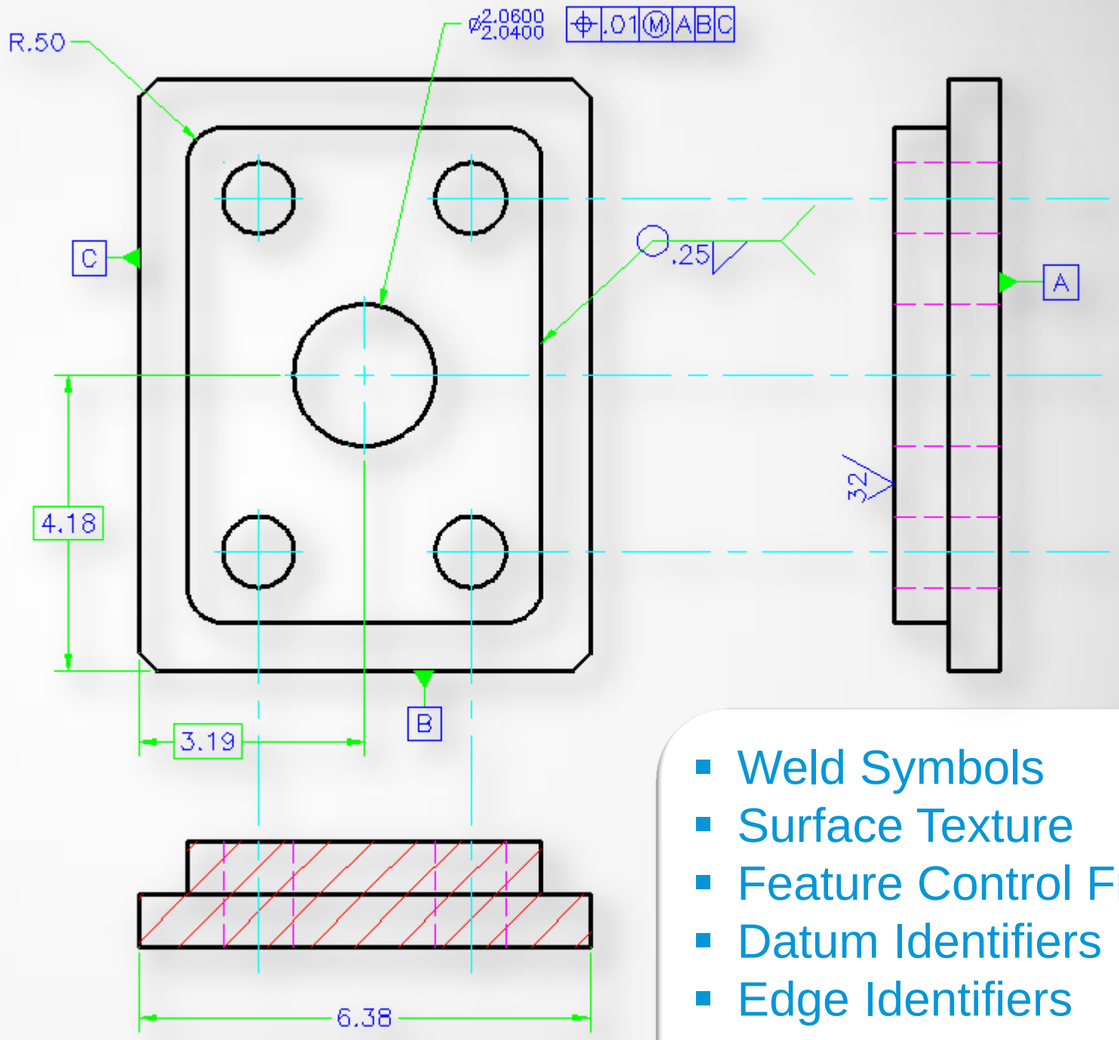




- Scales Dimensions Correctly
- Scale Area
- Model Space / Paper Space

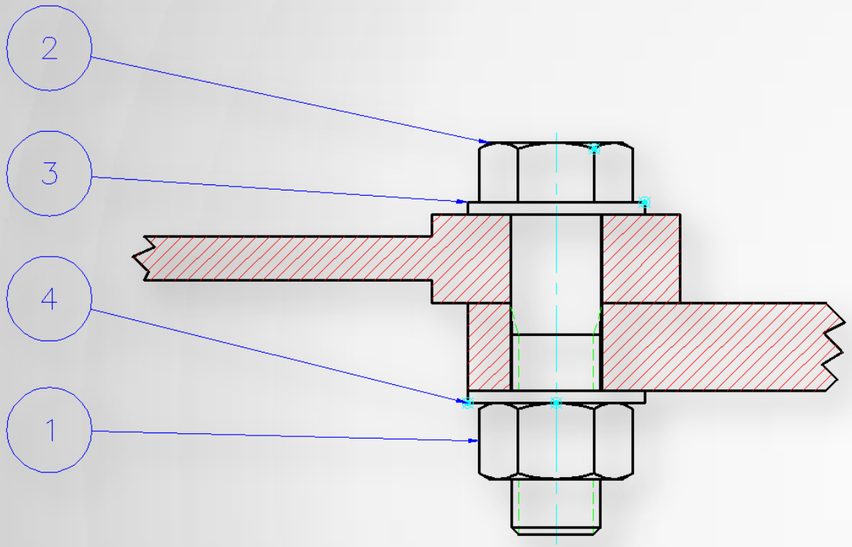
#6 – Mechanical Symbols





- Weld Symbols
- Surface Texture
- Feature Control Frames
- Datum Identifiers
- Edge Identifiers

#7 – Bill of Material / Balloons

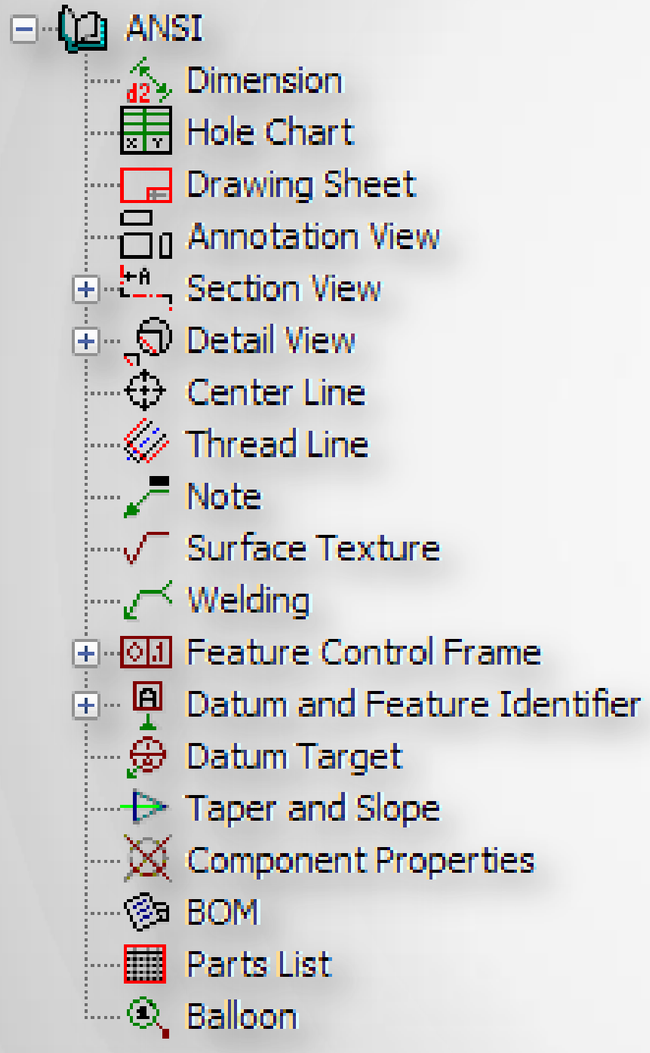


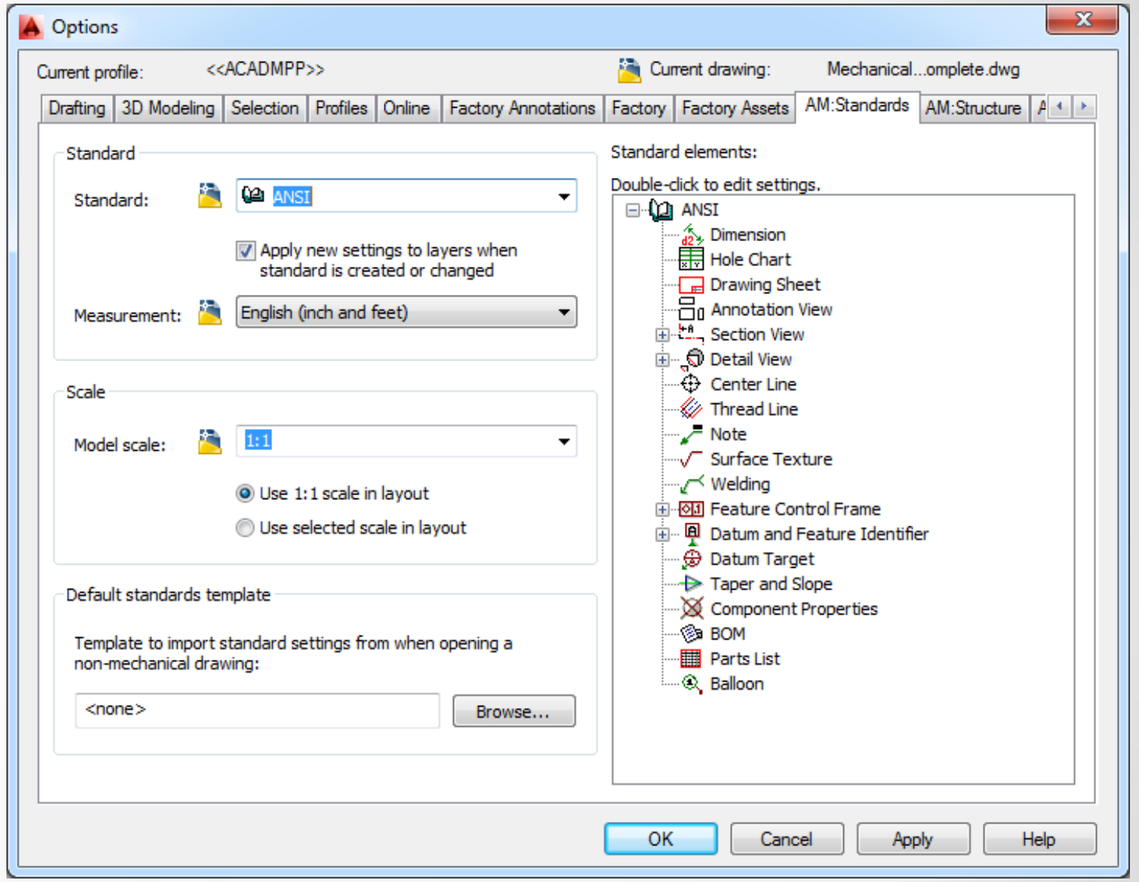
ITEM	QTY	NAME	MATERIAL	VENDOR	NOTE
14	1	TUBE – AISC – 4X2X 1/4 – 72	ASTM A500		
13	1	CHANNEL – DIN1026 – UPE 100 – S235JR – 72	S235JR		
12	1	T–SHAPE – AISC – MT 4X3.25 – 72	ASTM A36		
11	1	ANGLE STEEL – AISC – L 4 X 3 X 1/4 – 72	ASTM A36		
10	1	W SHAPE – AISC – W 4X13 – 72	ASTM A36		
9	1	ROLLER CHAIN ASME/ANSI B29.1M – NO. 100 X 37			
8	1	EXTENSION SPRING – SPEC – 5 X 55 X 157	DIN 17223 – C	SPEC	
7	1	ROLLER CHAIN ASME/ANSI B29.1M – NO. 100 X 37			
6	1	SPROCKET #= 21 ACC. TO ASME/ANSI B29.1M – NO. 100			
5	1	SPROCKET #= 12 ACC. TO ASME/ANSI B29.1M – NO. 100			
4	1	WASHER A – ANSI B18.22.1 – 1 – NARROW – TYPE A			
3	1	WASHER A – ANSI B18.22.1 – 1 – NARROW – TYPE A			
2	1	HEX BOLT – UNC (REGULAR THREAD – INCH) – ANSI/ASME B18.2.1 – 1 – 8 – 3 3/4			
1	1	HEX NUT – ANSI B18.2.2 – 1 – 8			

Parts List

- Item Identifiers / Blue Dot
- BOM Configuration
- BOM Import / Export
- Balloon Configuration
- Works with Blocks

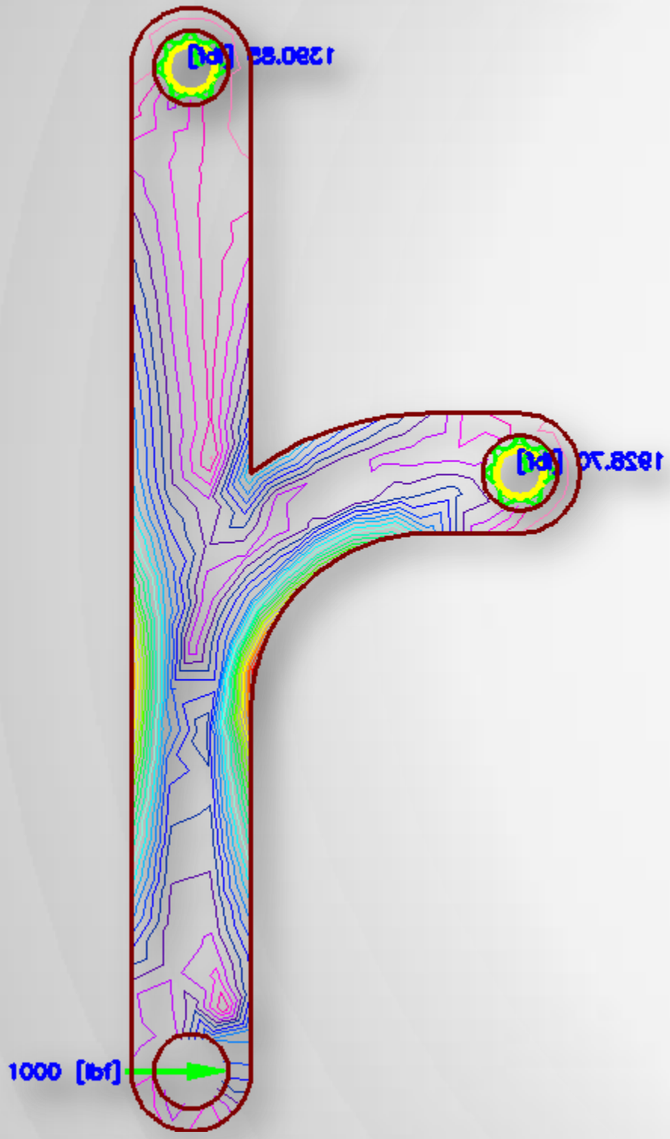
#8 – Drawing Standards

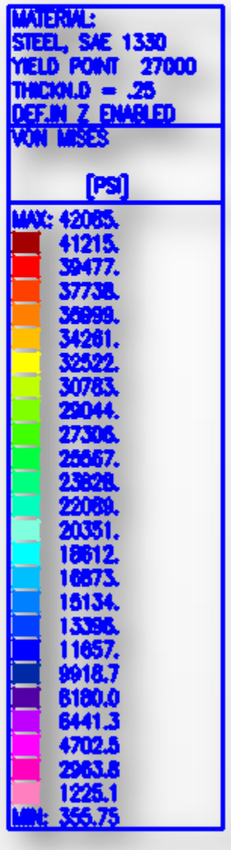


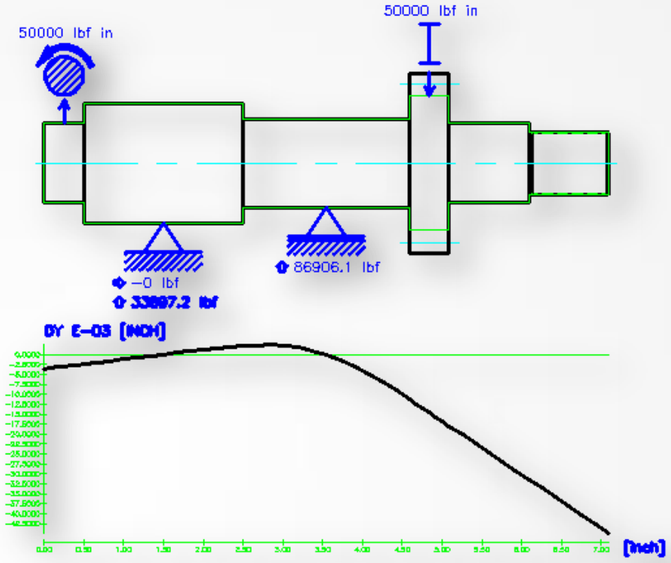


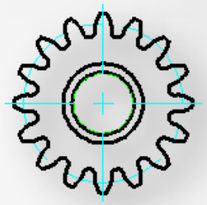
- The Entire CAD Standard in One Place

#9 – Mechanical Calculations





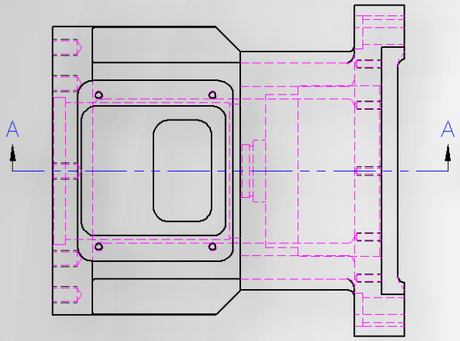


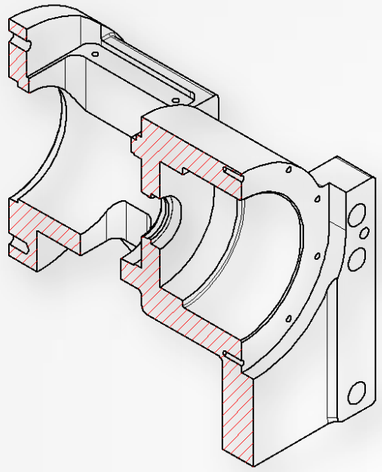


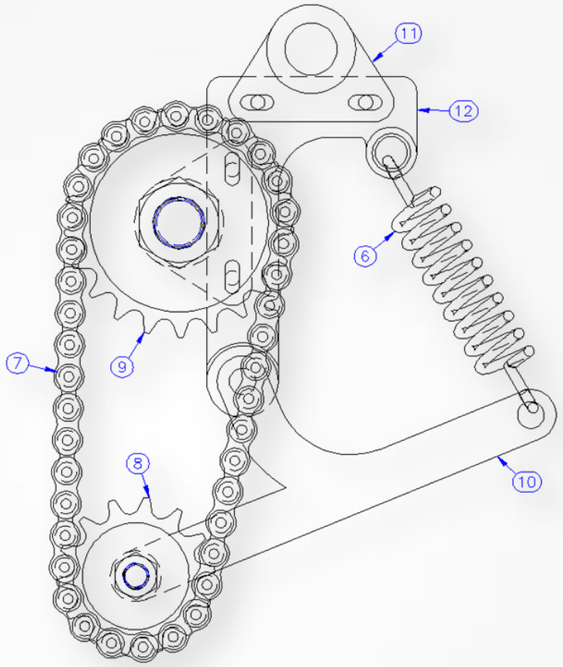
Calculated Values		
YIELD POINT	[PSI]	34084
E-MODULUS	[PSI]	30457922
MATERIAL		S235JR
MAX. RES. DEFLECTION	[INCH]	130.9347 E-03
AT POSITION	[INCH]	7.0905
MAX. RES. BENDING MOMENT	[LBF IN]	68.9198 E+03
AT POSITION	[INCH]	3.5453
MAX. TORSION MOMENT	[LBF IN]	50 E+03
AT POSITION	[INCH]	250 E-03
MAX. TORQUE ROTATION ANGLE	[DEG]	5.2176
AT POSITION	[INCH]	250 E-03
MAX. TORSION STRESS	[PSI]	254.6479 E+03
AT POSITION	[INCH]	250 E-03
MAX. AXIAL STRESS	[PSI]	0
AT POSITION	[INCH]	0
MAX. RESULT BENDING STRESS	[PSI]	524.8969 E+03
AT POSITION	[INCH]	3.5453
MAX. VON MISES STRESS	[PSI]	543.8062 E+03
AT POSITION	[INCH]	3.5453
MAXIMAL VALUES OF STRESSES ARE CALCULATED WITHOUT REFLECTION OF NOTCHES.		

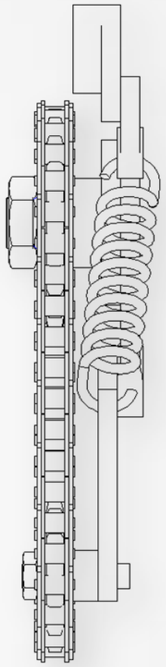
- 2D FEA
- Beam Deflection
- Shaft Calculation
- Screw Calculation
- Moment of Inertia

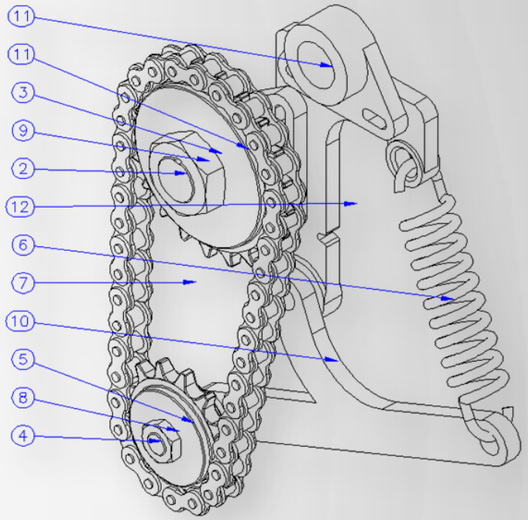
#10 – Documenting Inventor Models

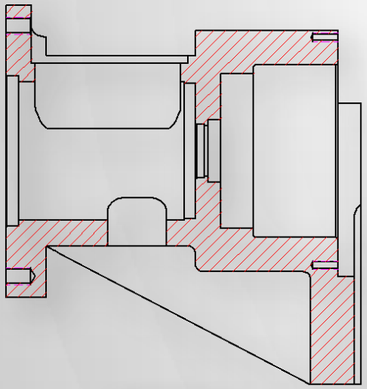


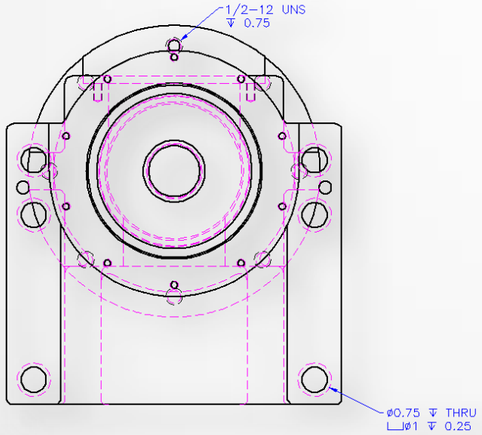












- Inventor Link / Mechanical
- Create Views / AutoCAD

ITEM	QTY	NAME
12	1	BASE PLATE
11	2	BRACKET
10	1	SWINGARM
9	1	N023311 002H4D2V
8	1	N023311 002HR0PV
7	1	CHAIN LINK 37
6	1	N026003T D06HBRRV
5	1	SHAFT3 D0610MPV
4	1	1–UNC
3	1	SHAFT3 D05GULEV
2	1	2–UNC

Parts List