



CHITTAGONG UNIVERSITY OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

Assignment - 03

Topic: Shaft assembly, Universal Joint, and Clamp from Huang Lee's Book and the flange coupling assembly, four-cylinder engine, and radial engine

ME - 272

CAD and Design Softwares

Prepared by -

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ID : 2003091
Level : 2
Term : 1
Section : B
Group : B2

Submitted to -

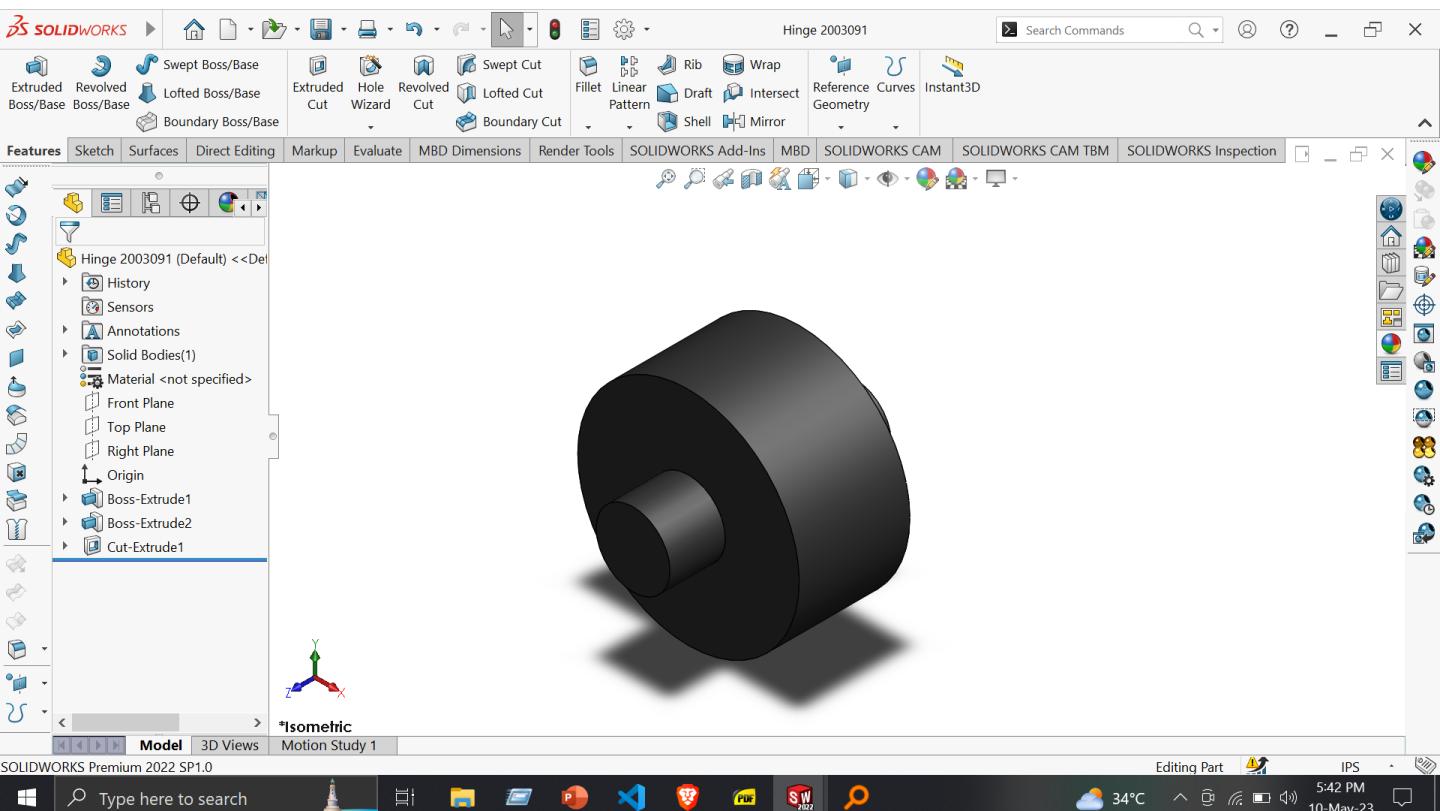
Safina-E-Tahura Siddiqui
Lecturer, ME, CUET

Submission Date: 10-May-23



Shaft Assembly

Part 1 - Hinge



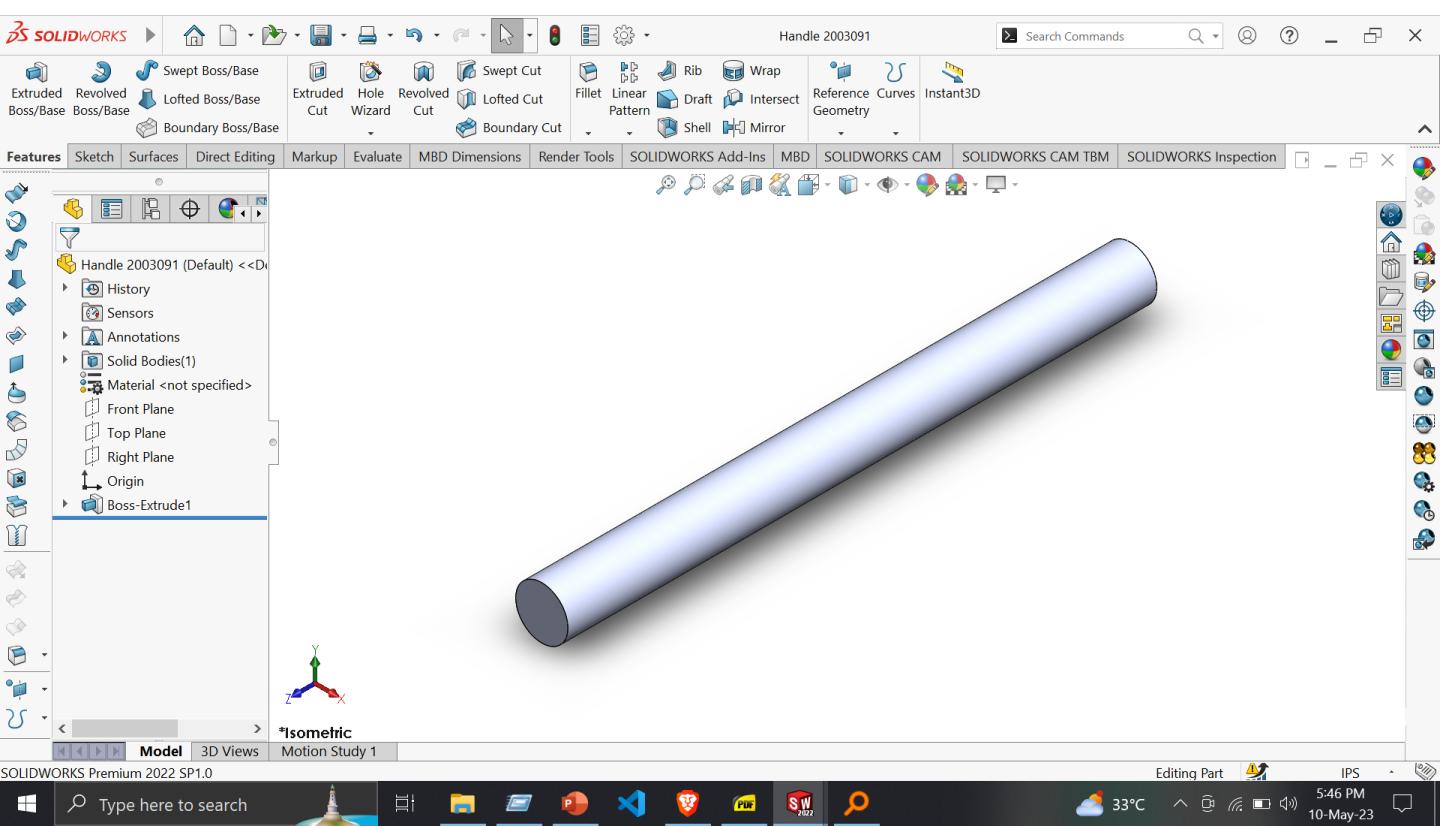
Tools :

1. Sketch
2. Smart Dimension

Features :

1. Extruded Boss/Base
2. Extruded Cut

Part 2: Handle



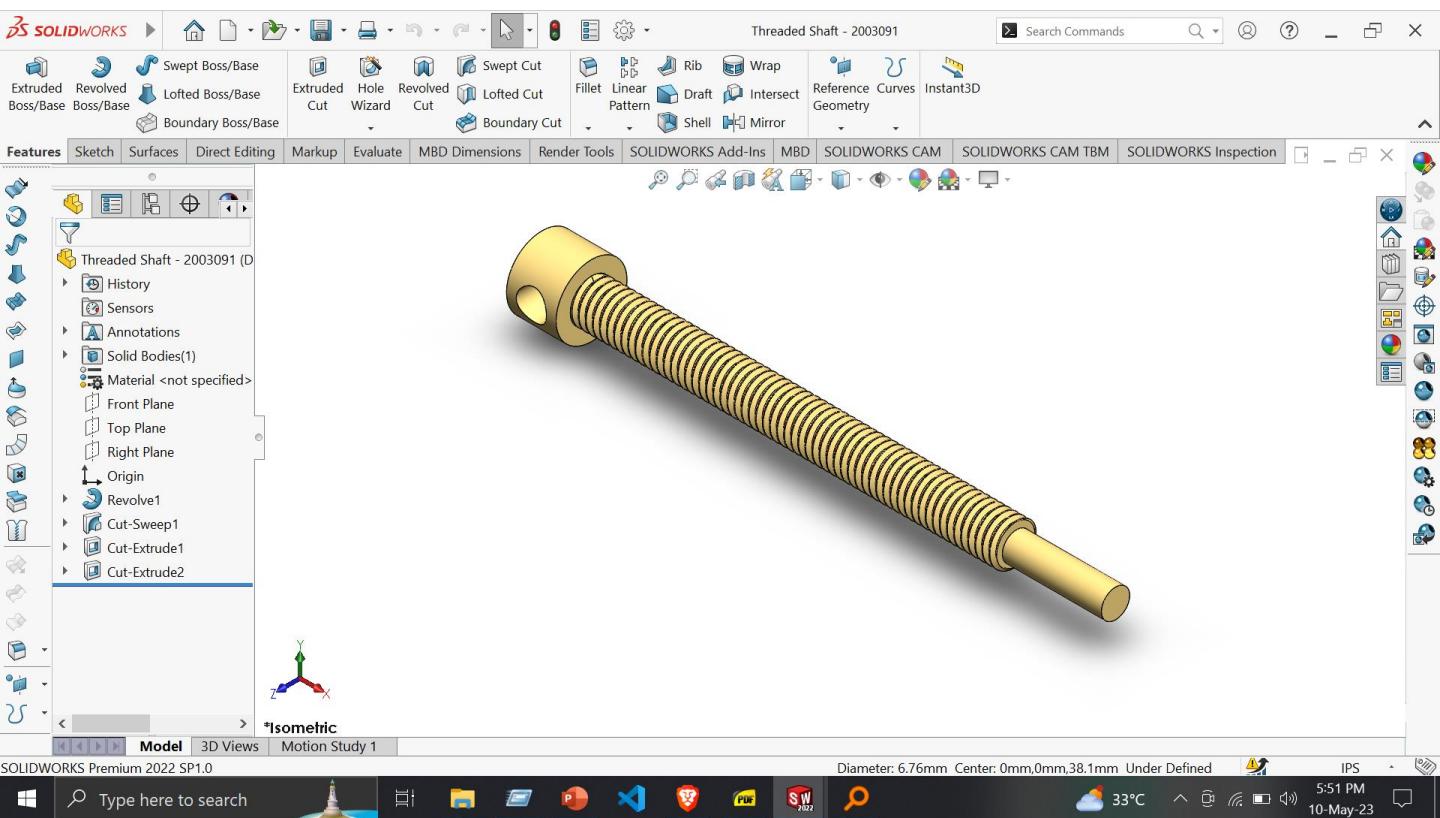
Tools :

1. Sketch -> Circle
2. Smart Dimension

Features :

1. Extruded Boss/Base

Part 3: Threaded Shaft



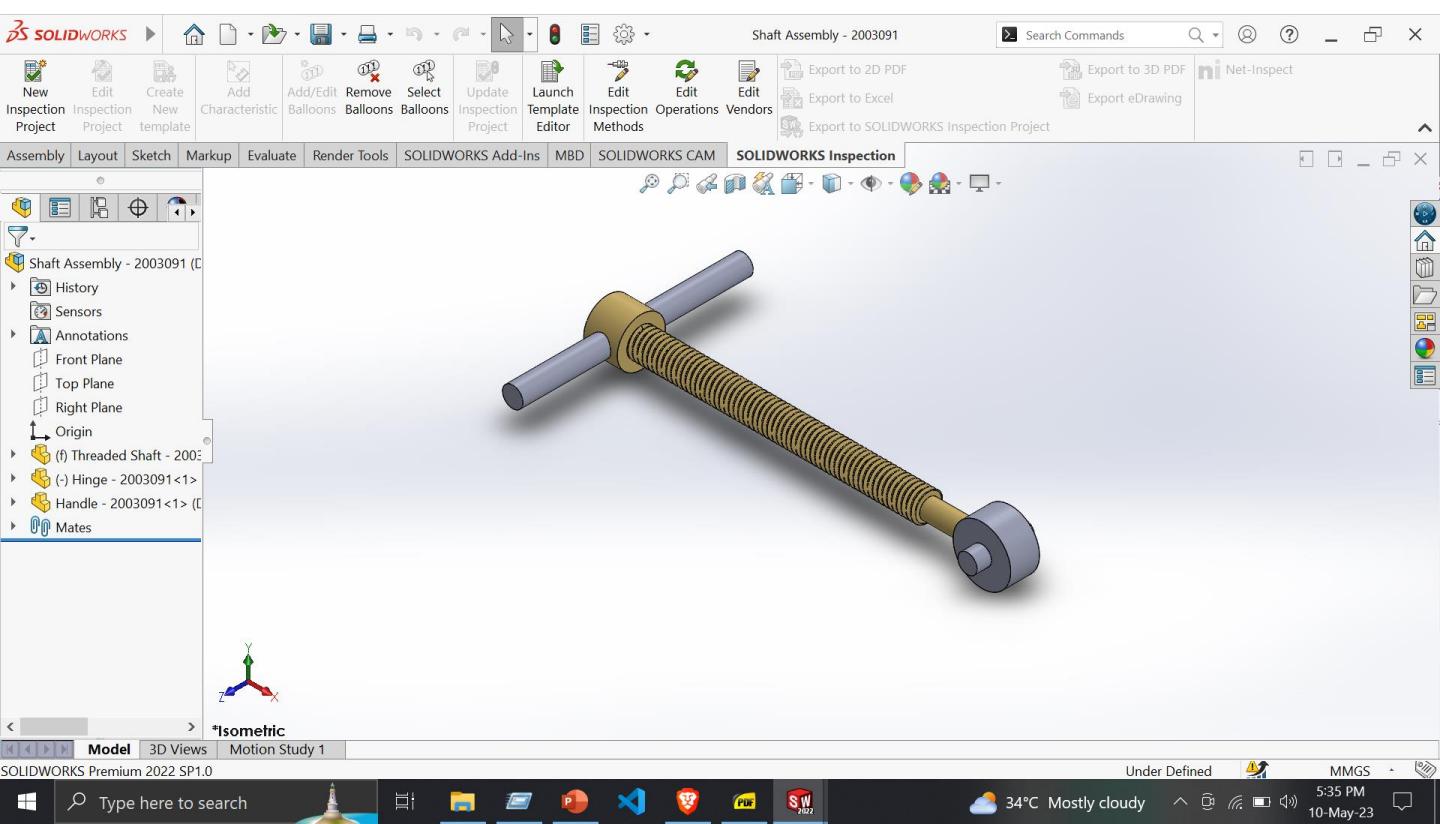
Tools :

1. Line
2. Centerline
3. Circle
4. Convert Entities
5. Smart Dimension

Features :

1. Extruded Boss/Base
2. Revolved Boss/Base
3. Swept Cut
4. Extruded Cut

Shaft Assembly

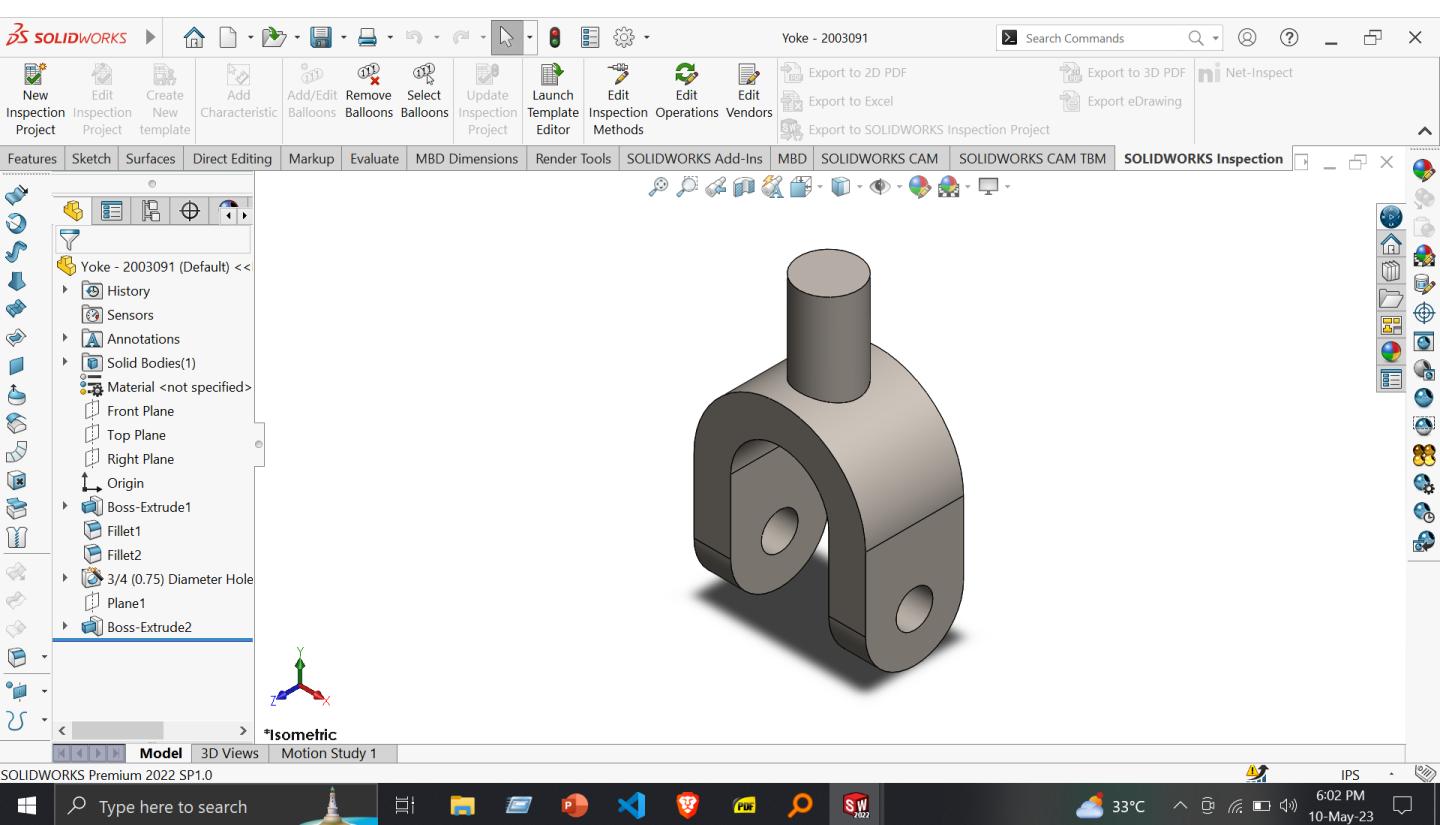


Assembly –

1. Insert Component
2. Mate
 - > Coincide
 - > Concentric

Universal Joint

Part 1: Yoke



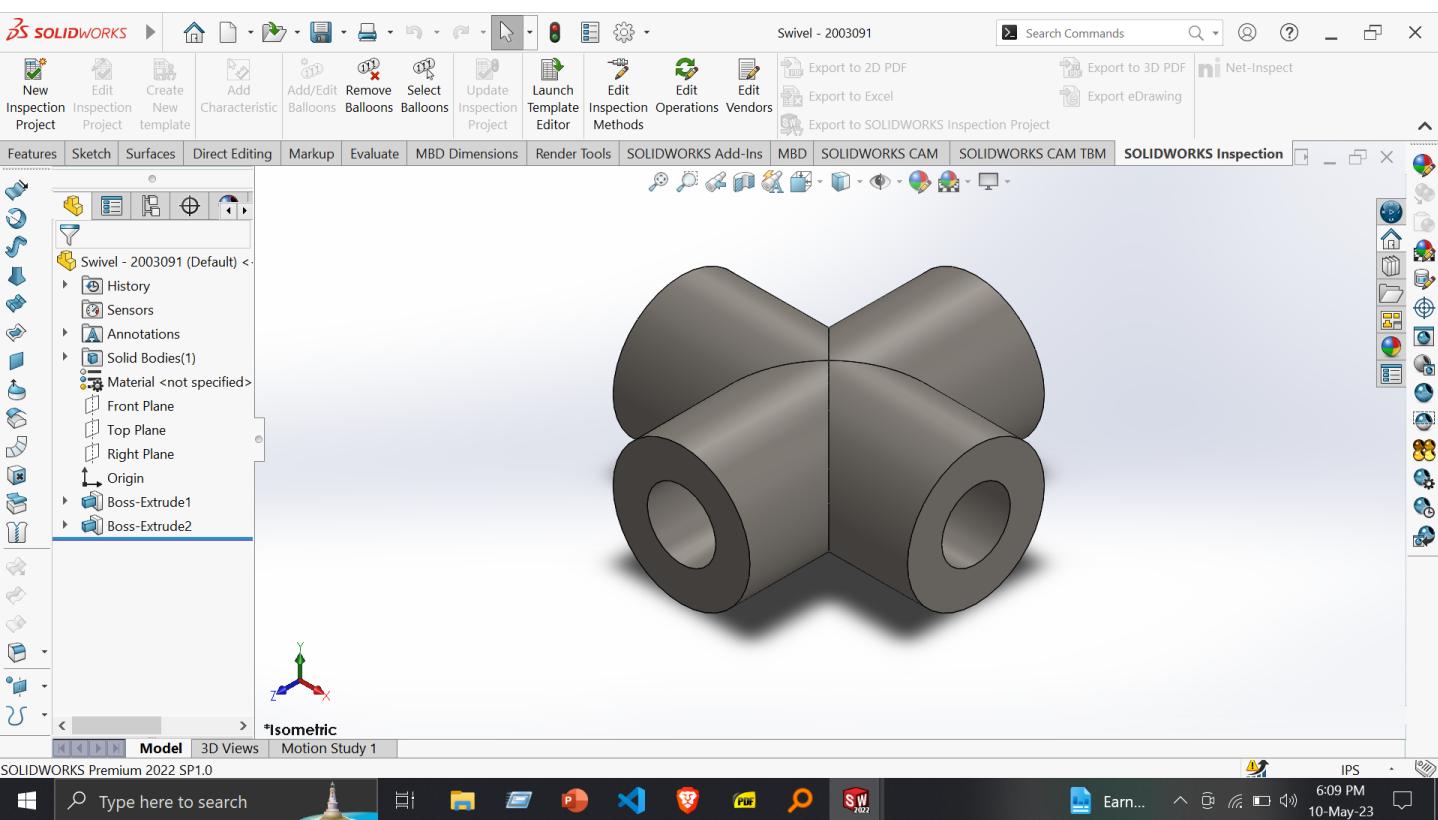
Features:

1. Extruded Boss/Base
2. Fillet
3. Hole Wizard
4. Reference Geometry -> Plane

Tools:

1. Line
2. Centerline
3. Circle
4. Smart Dimension

Part 2: Swivel



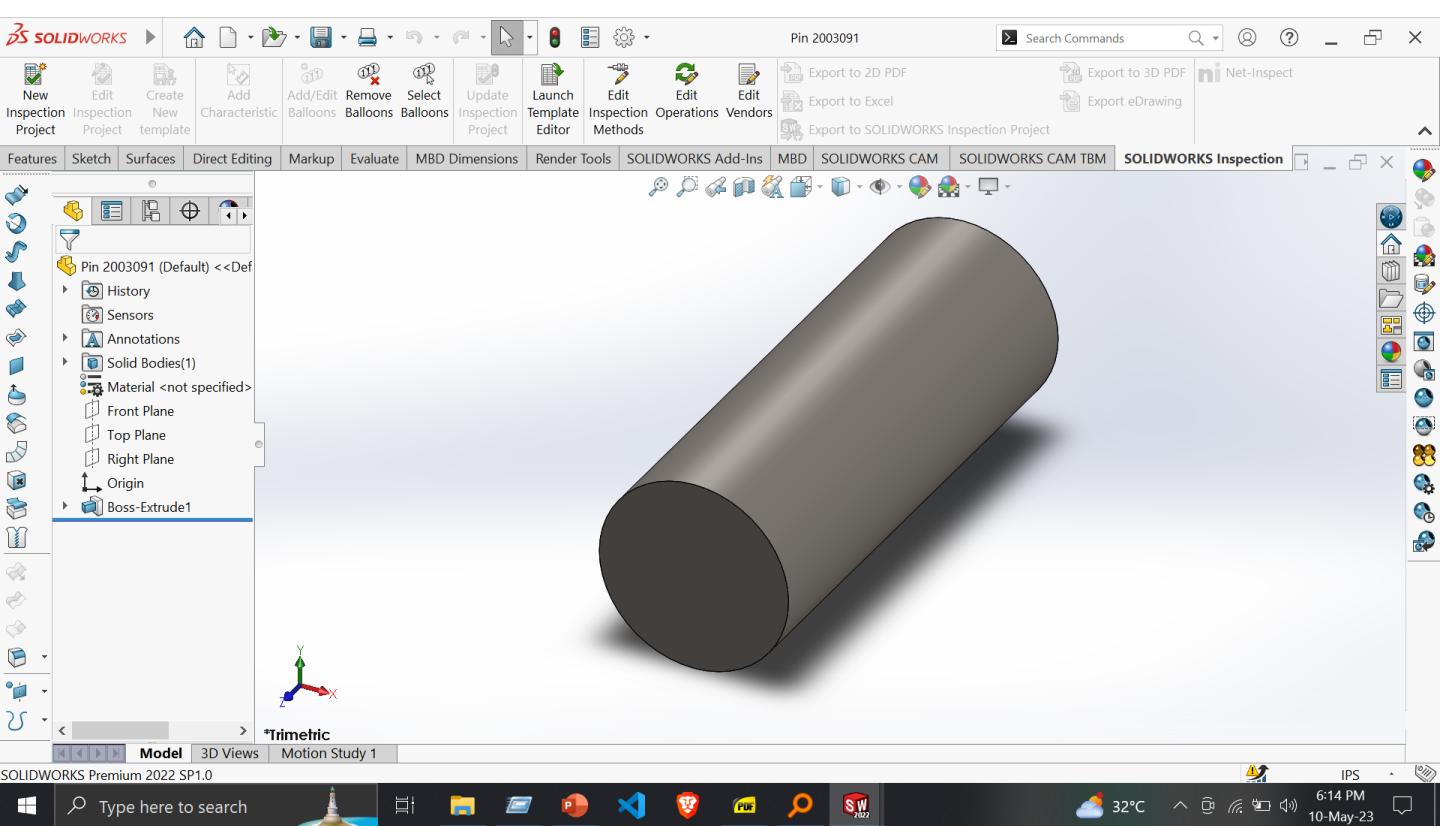
Features:

1. Extruded Boss/Base

Tools:

1. Sketch
2. Smart Dimension

Part 3: Pin



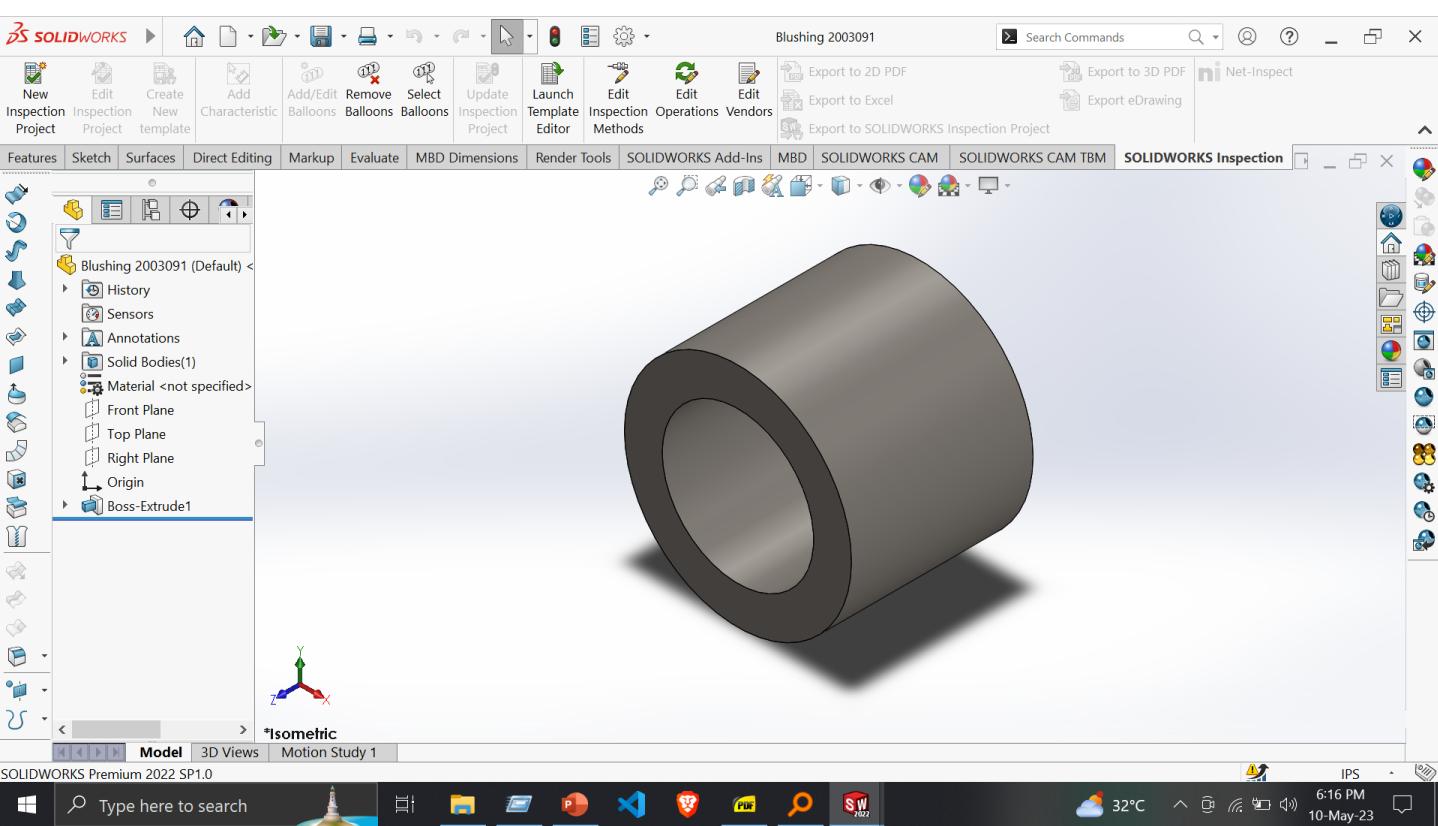
Features:

1. Extruded Boss/Base

Tools:

1. Sketch
2. Smart Dimension

Part 4: Blushing



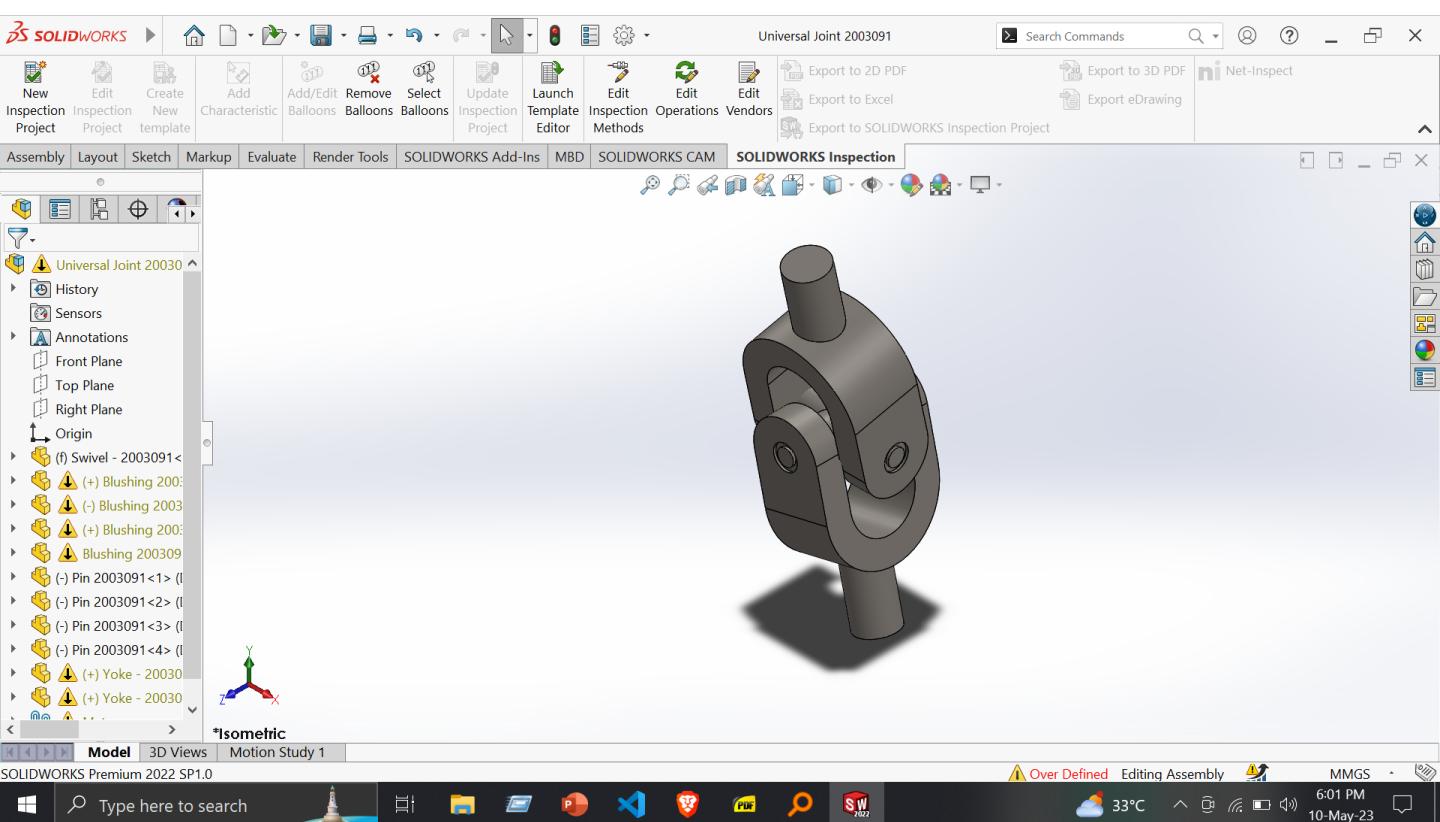
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Sketch
2. Smart Dimension

Universal Joint

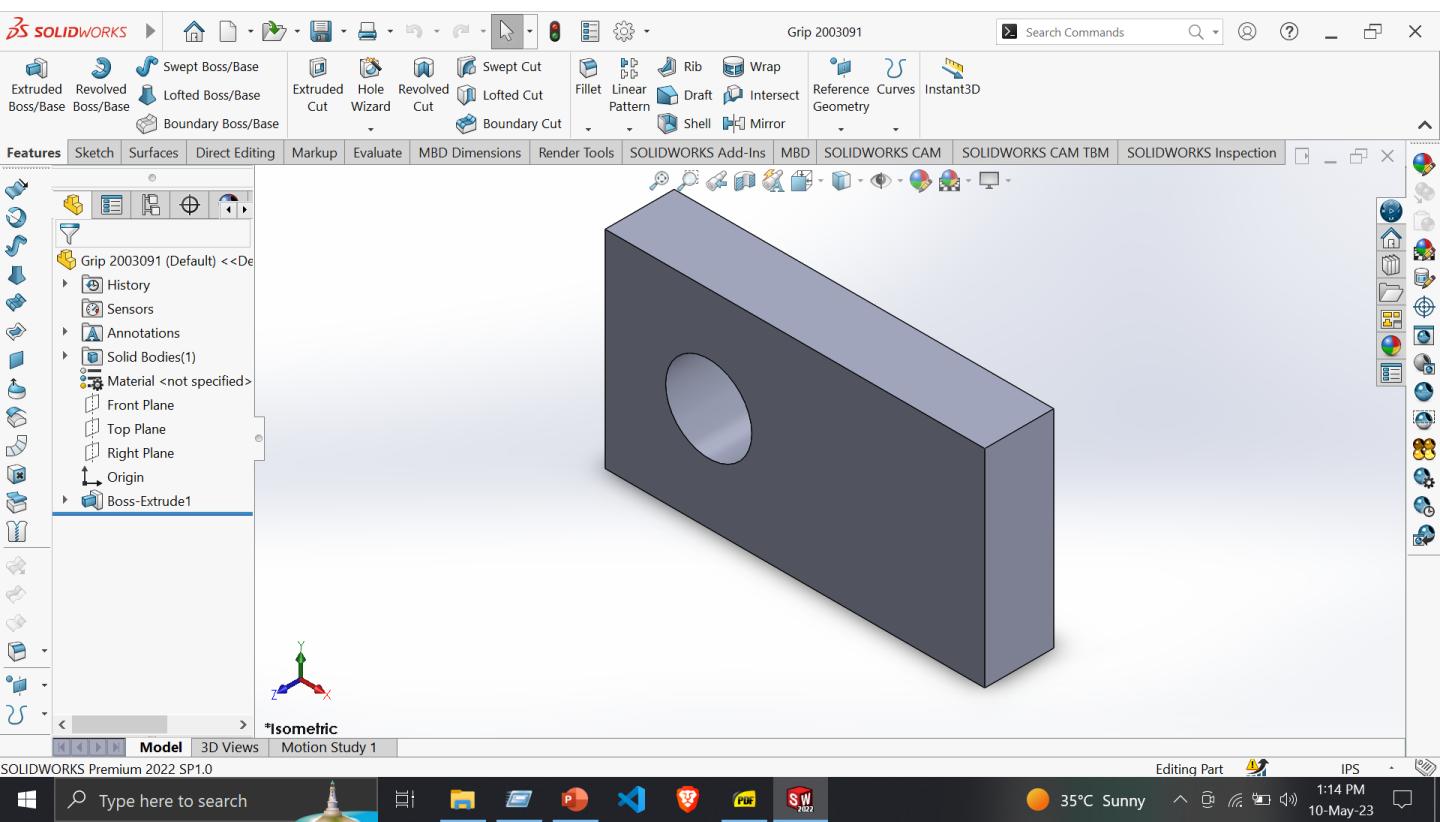


Assembly –

1. Insert Component
2. Mate
3. Coincide
4. Concentric
5. Advanced Mate - Width

Clamp

Part 1: Grip



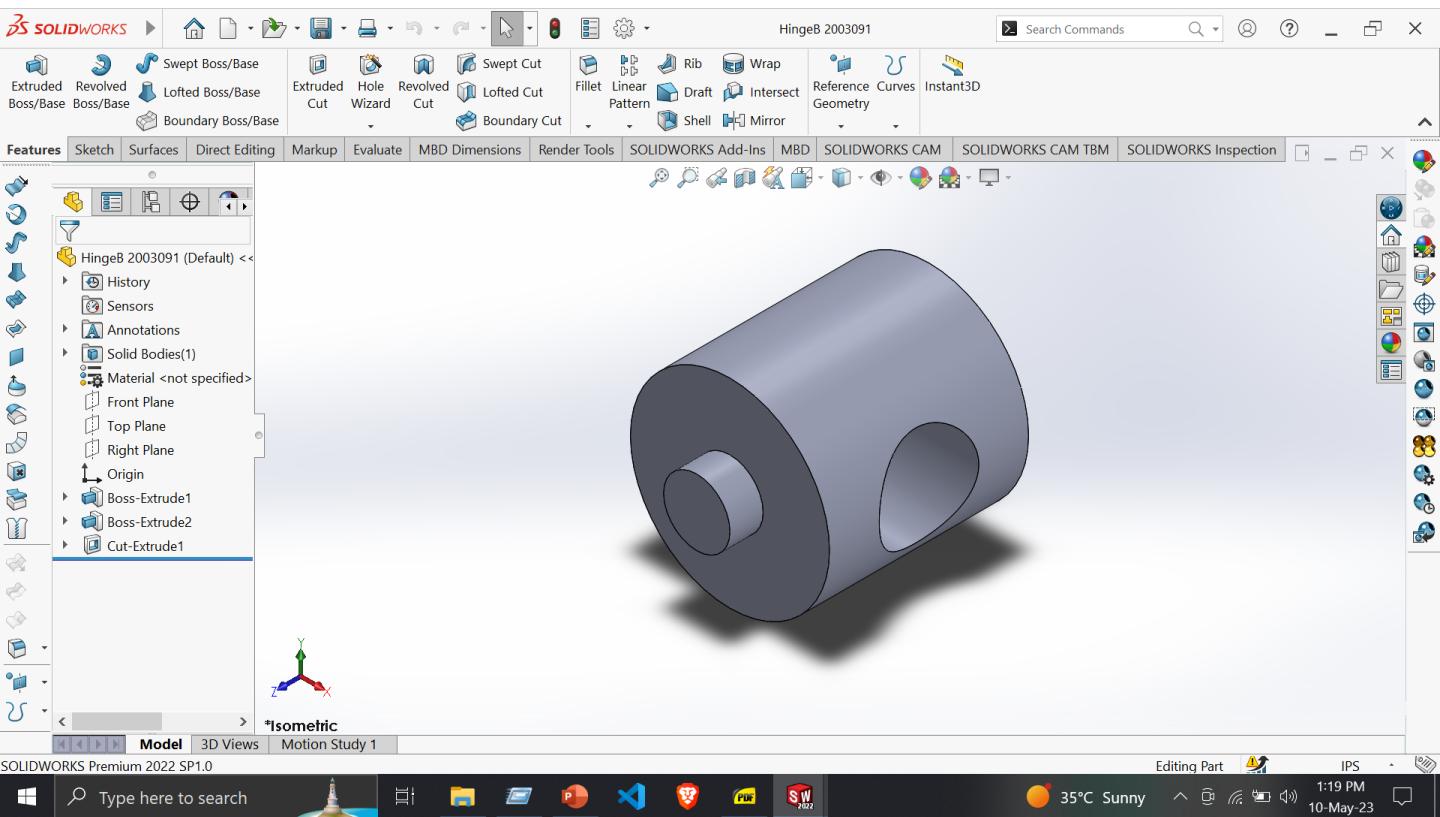
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Sketch
2. Smart Dimension

Part 2: Hinge B



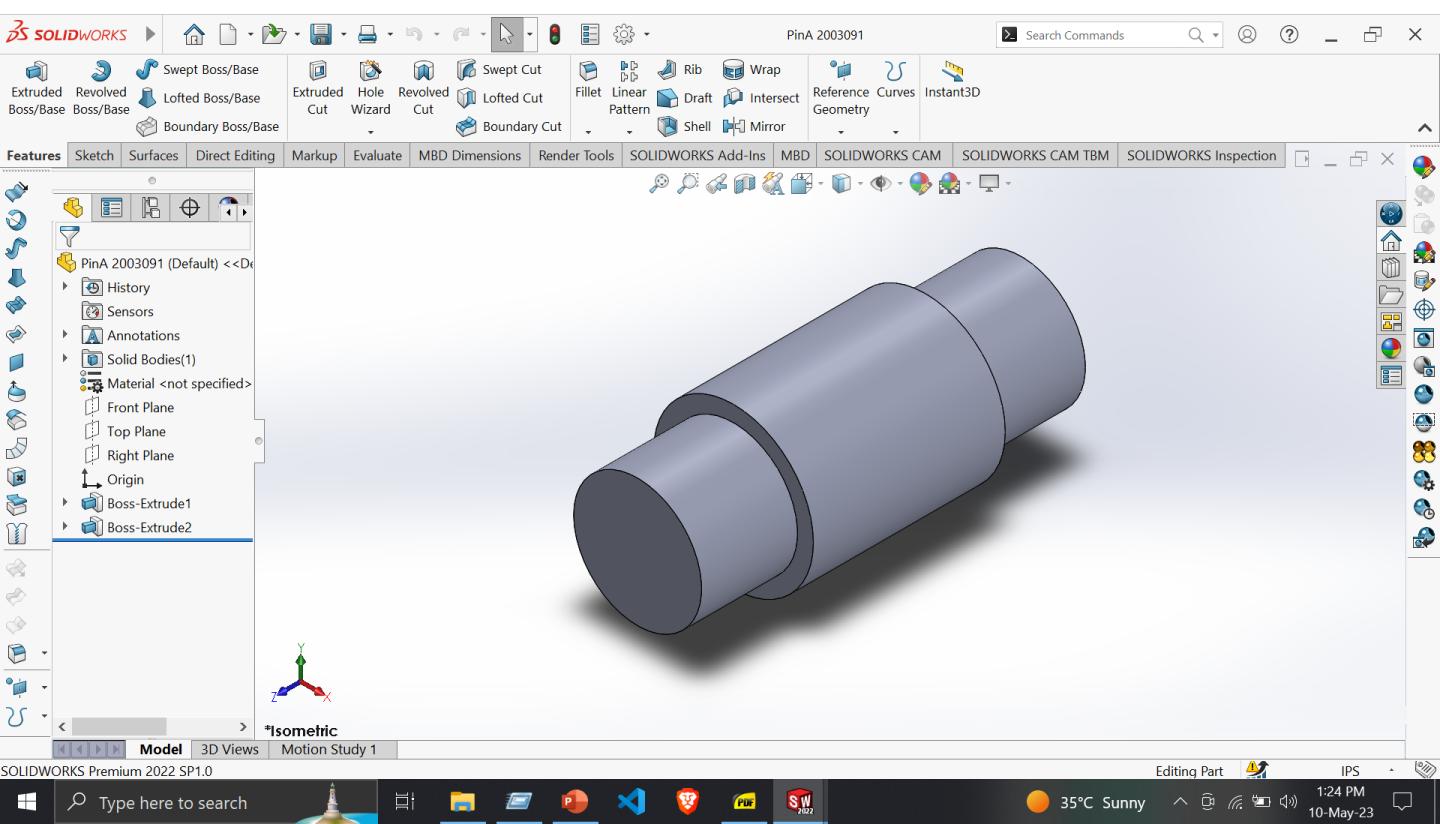
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Sketch
2. Smart Dimension

Part 3: Pin A



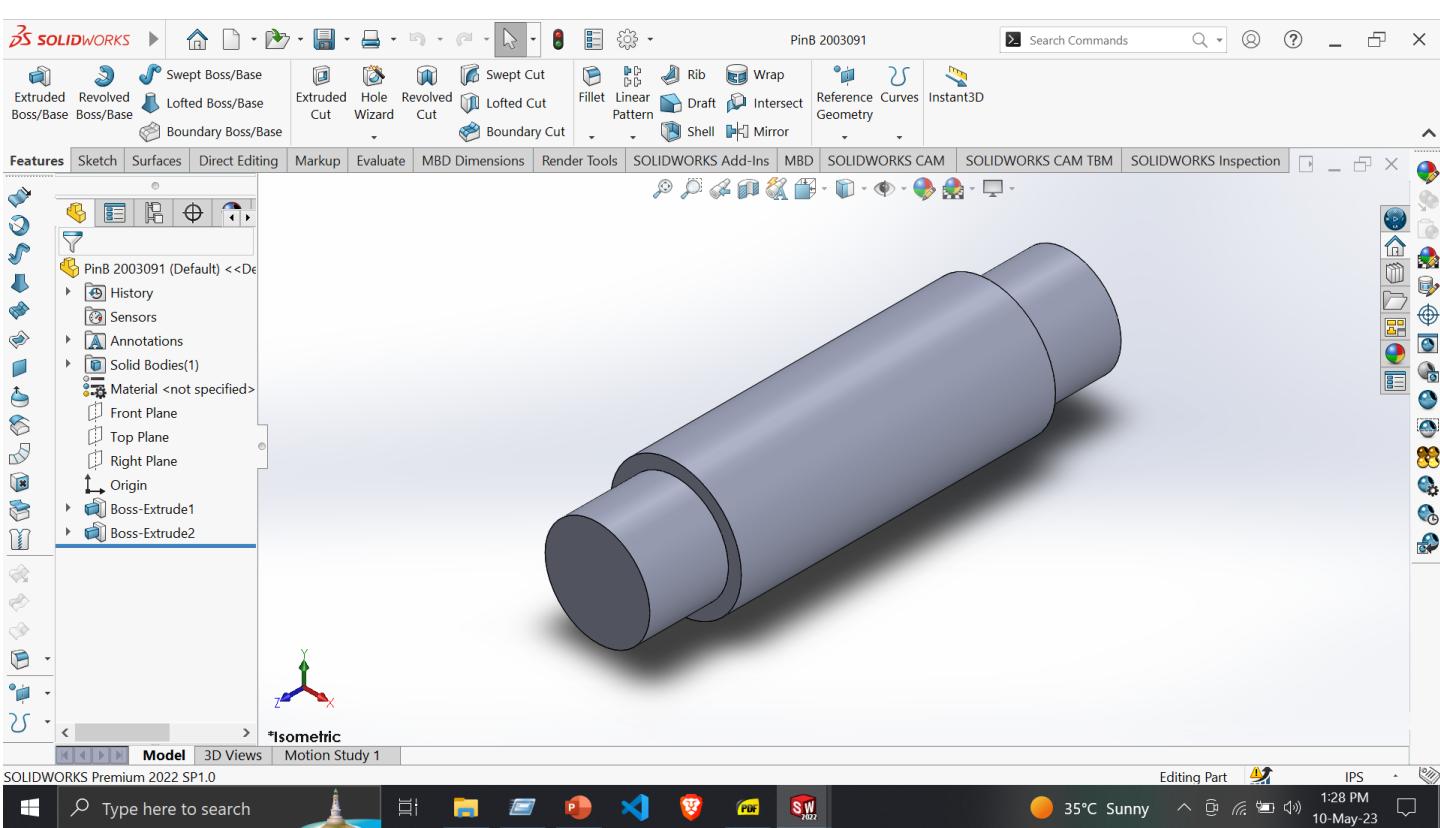
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Sketch
2. Smart Dimension

Part 4: Pin B



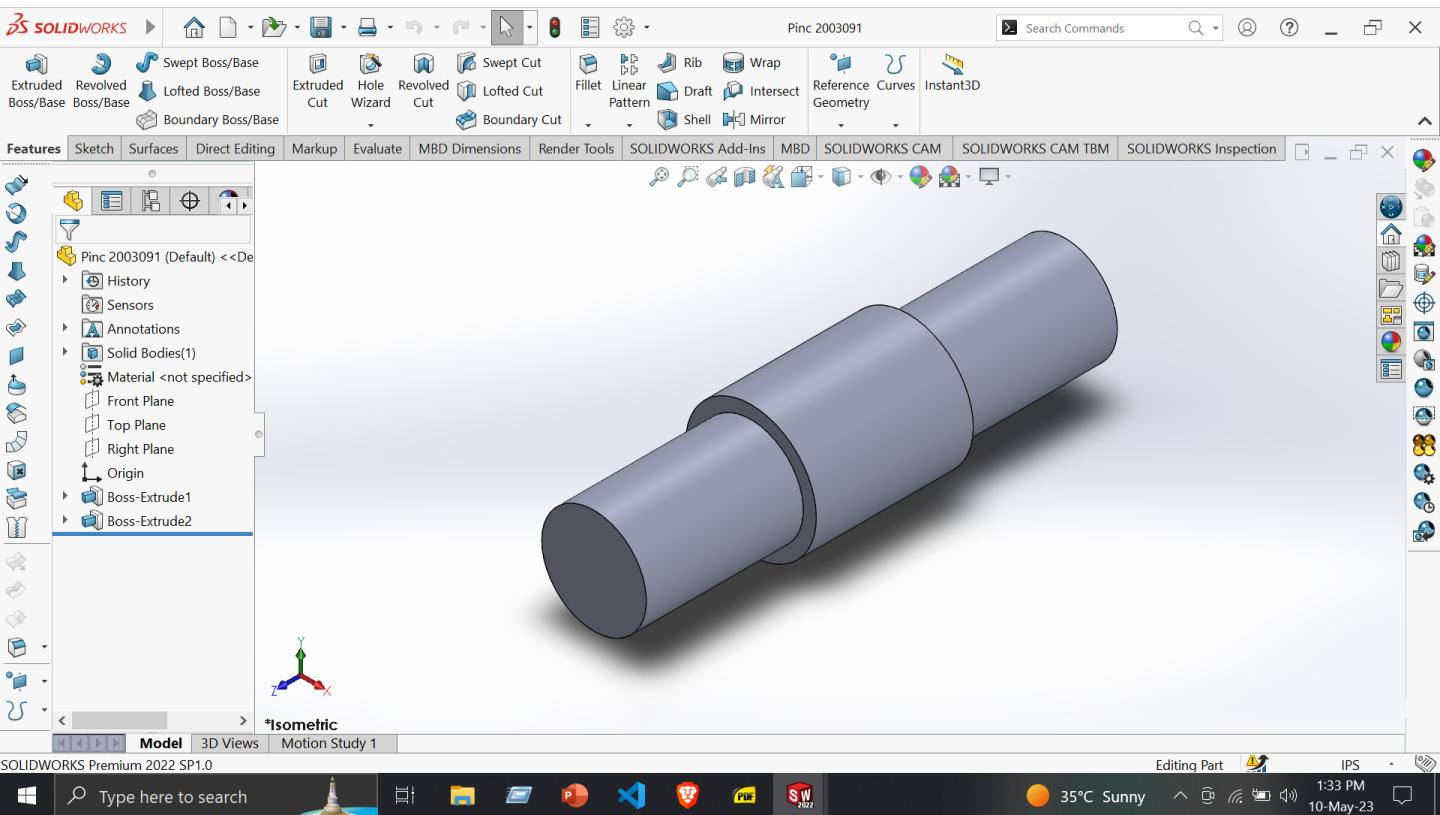
Features:

1. Extruded Boss/Base

Tools:

1. Sketch
2. Smart Dimension

Part 5: Pin C



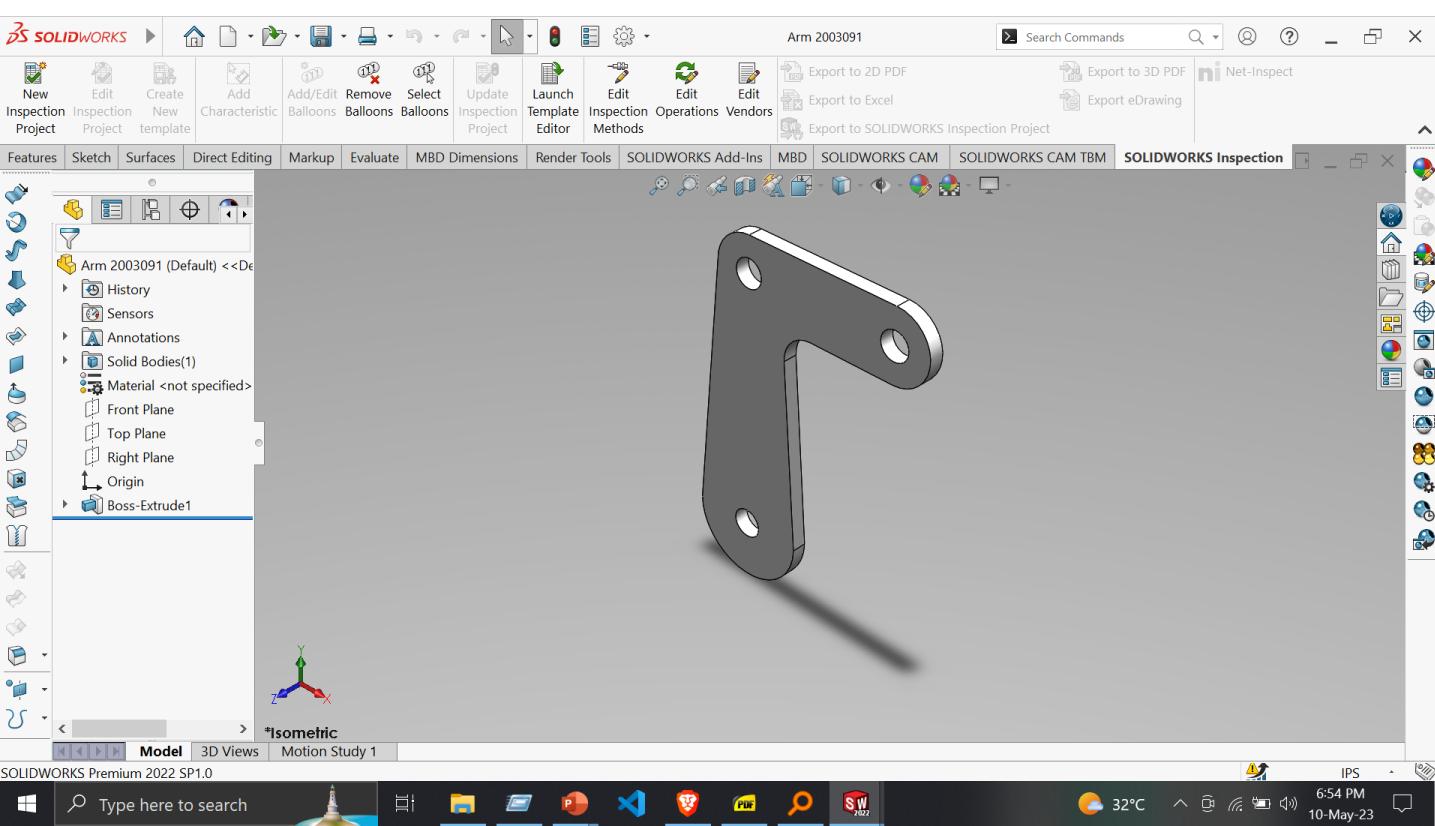
Features:

1. Extruded Boss/Base

Tools:

1. Sketch
2. Smart Dimension

Part 6 : Arm



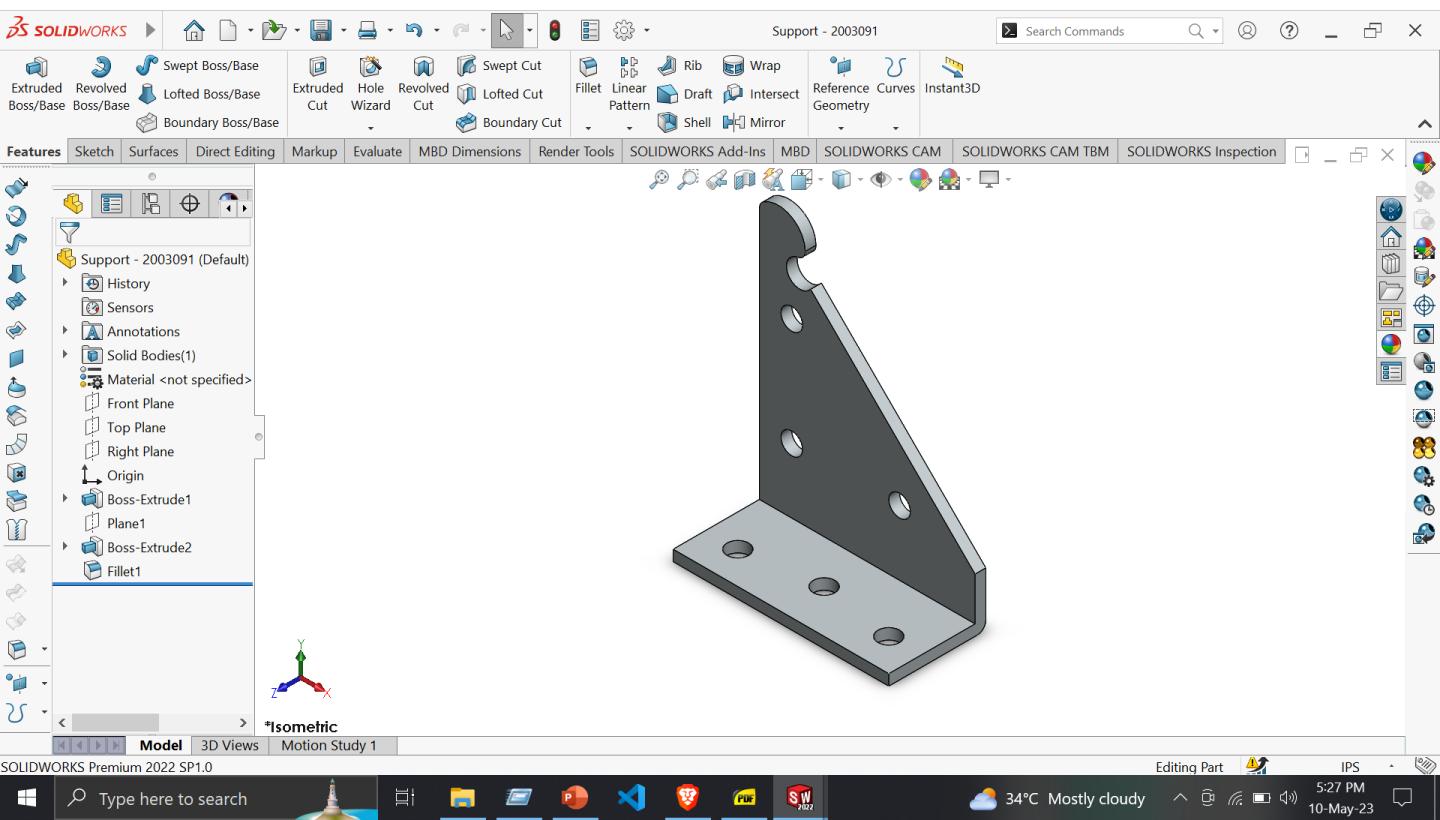
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Sketch
2. Smart Dimension
3. Fillet
4. Add Relation

Part 7: Support



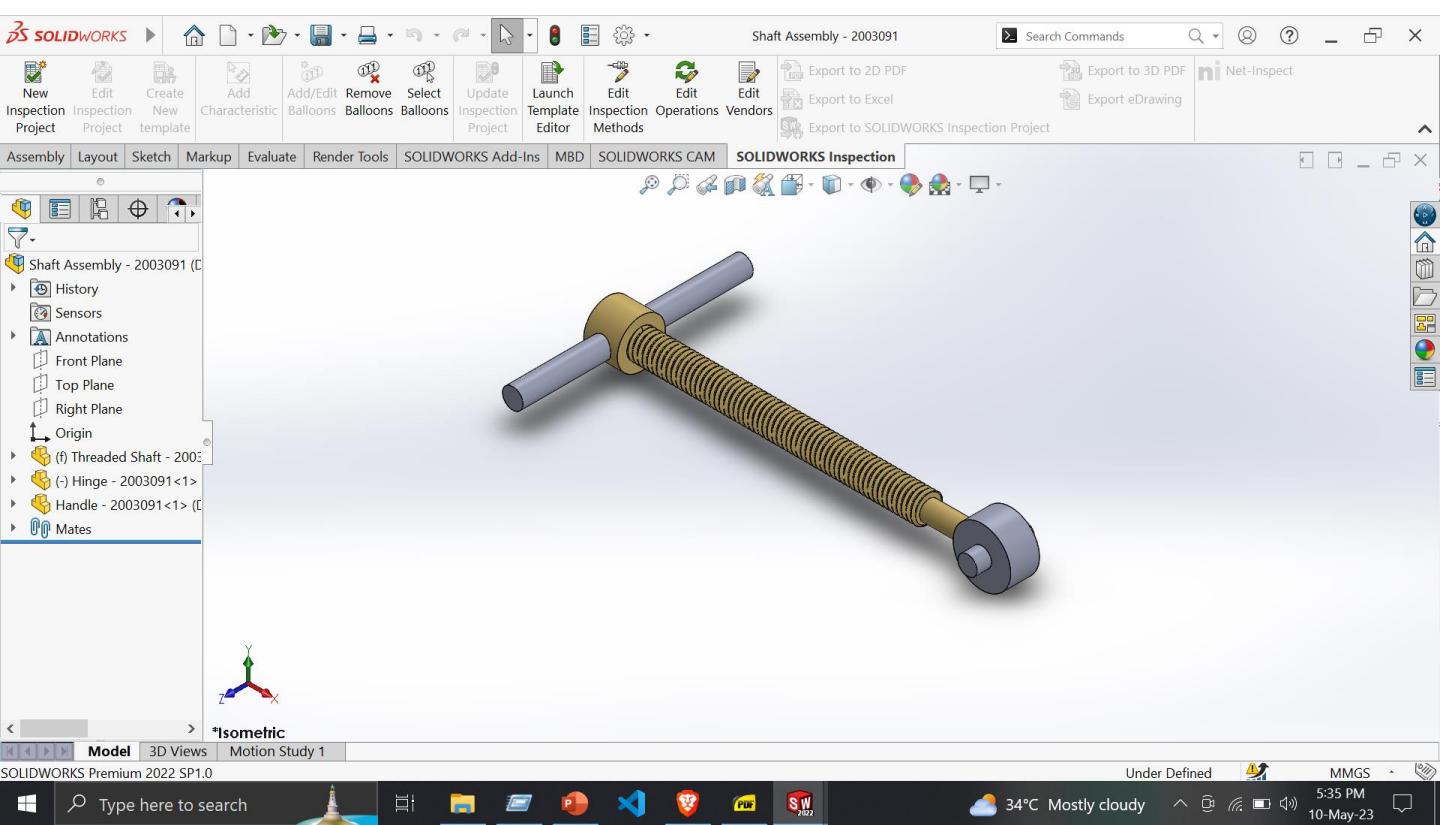
Features:

1. Extruded Boss/Base
2. Reference Geometry -> Plane
3. Fillet

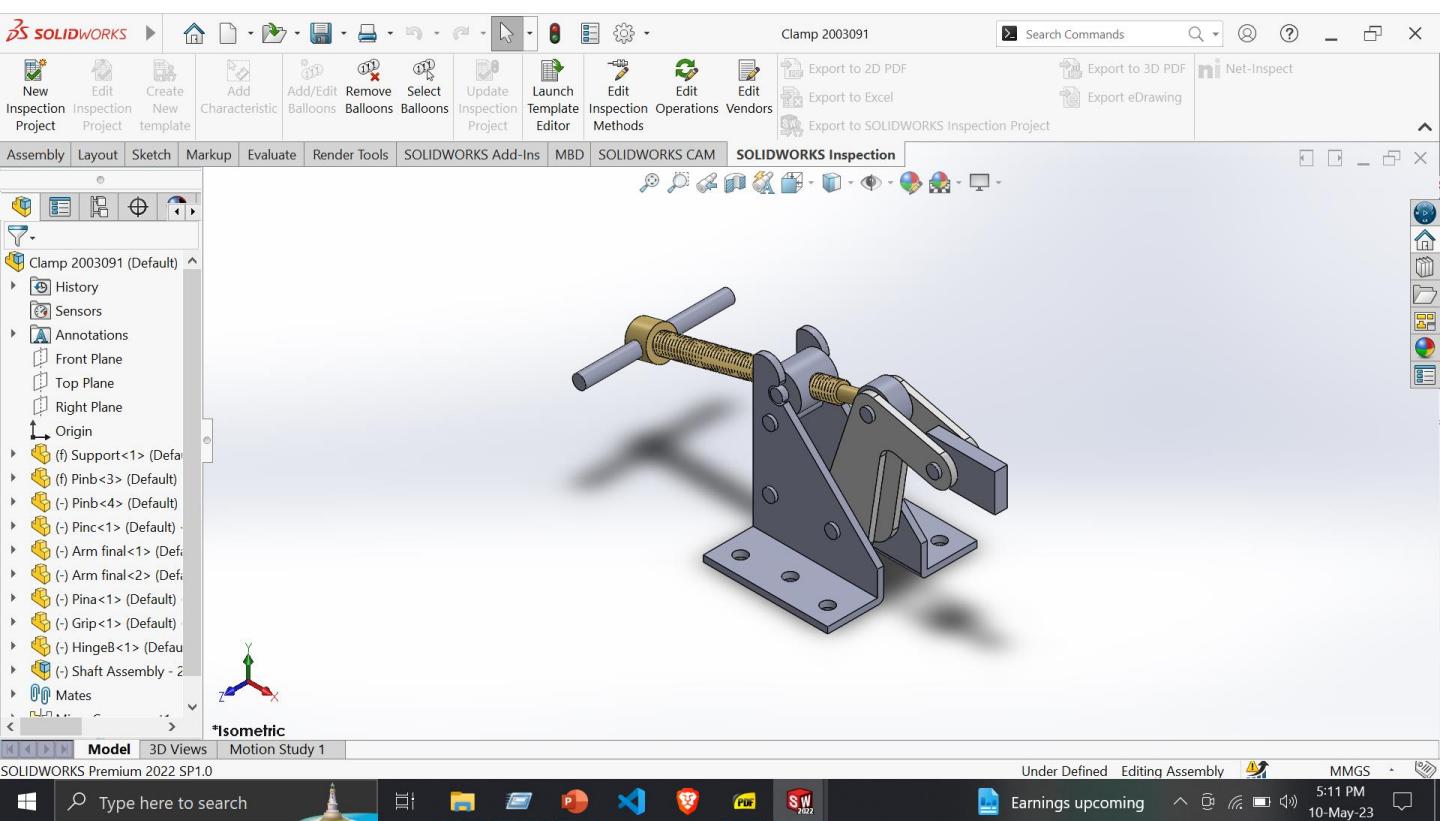
Tools:

1. Line
2. Circle
3. Sketch Fillet
4. Trim Entities
5. Display/Delete Relations -> Add Relation
6. Smart Dimension

Part 8: Shaft Assembly



Clamp

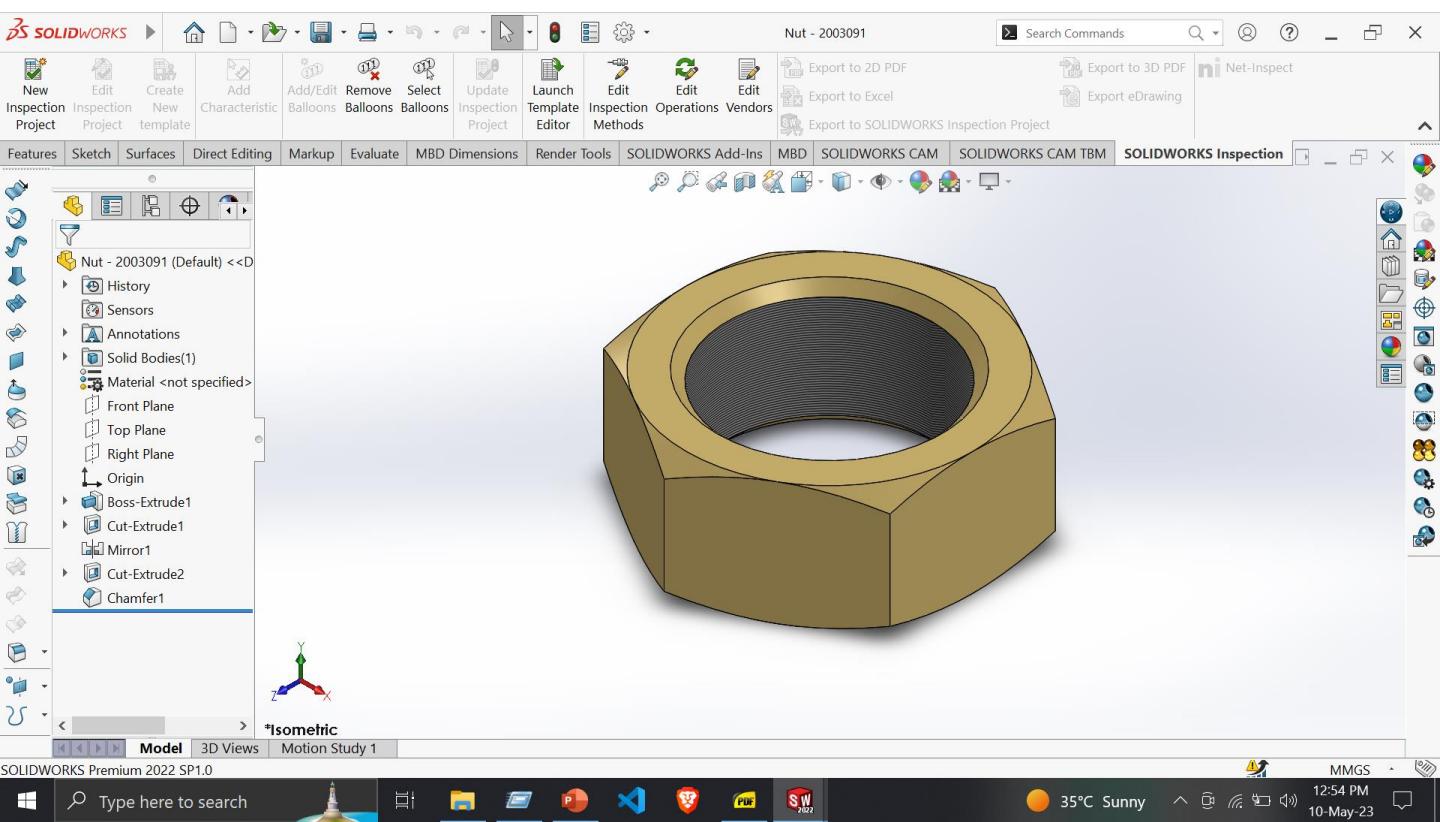


Assembly-

1. Insert Component
2. Mate
3. Mirror
4. Unfix
5. Coincide
6. Concentric
7. Width

Flange Coupling

Part 1 - Nut



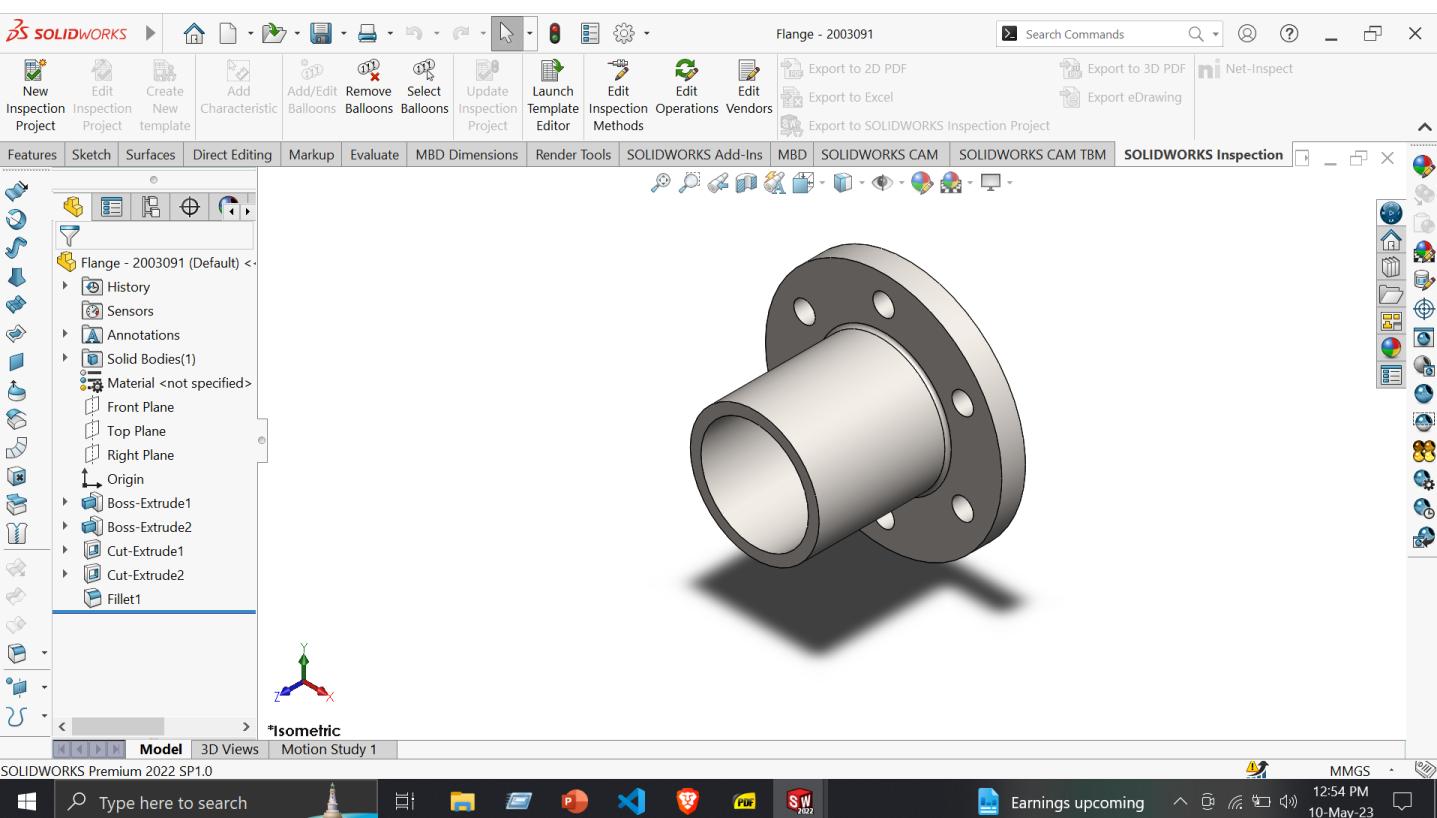
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Sketch Fillet
4. Smart Dimension
5. Chamfer

Part 2: Flange



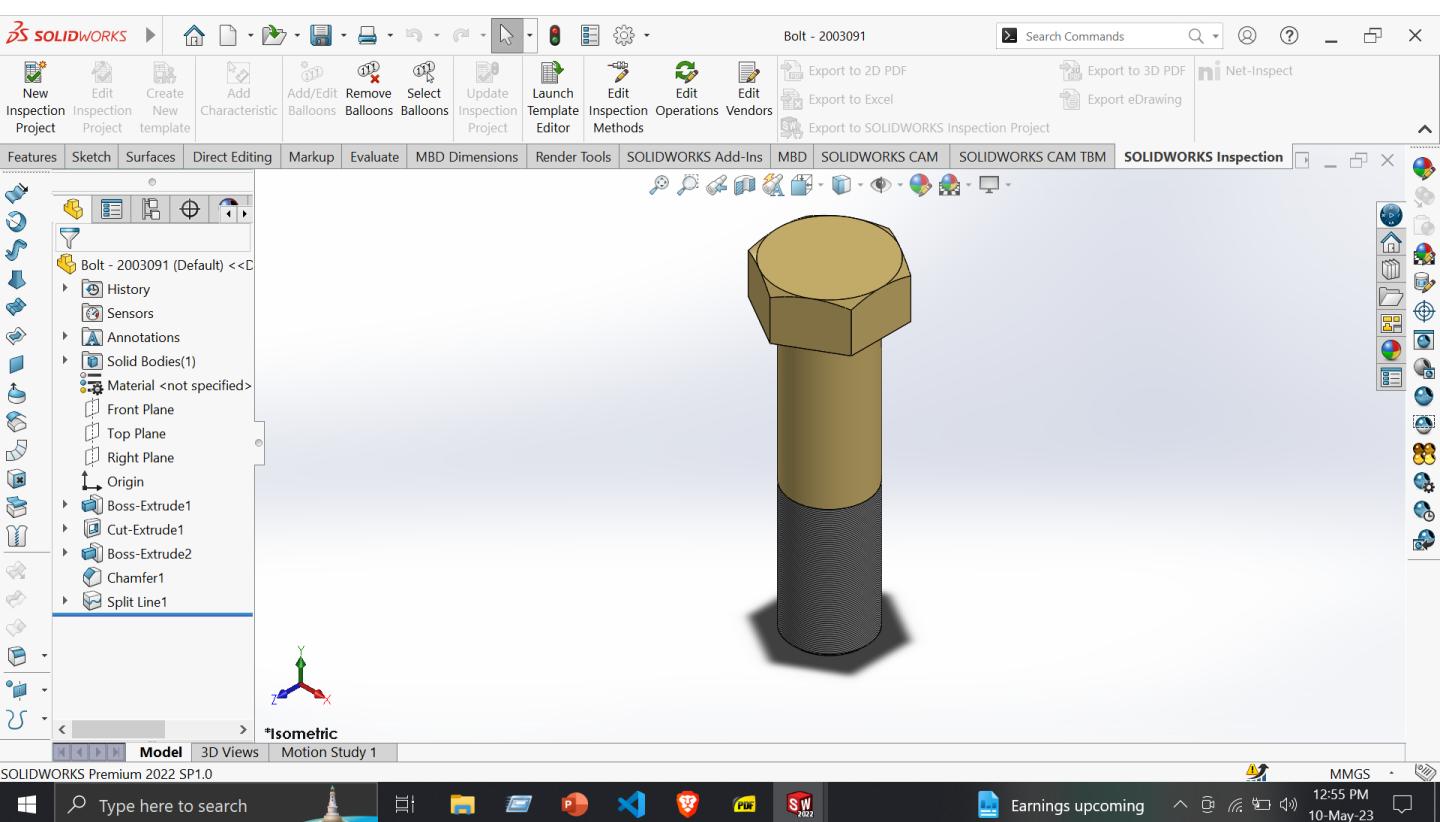
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Smart Dimension
4. Circular pattern

Part 3: Bolt



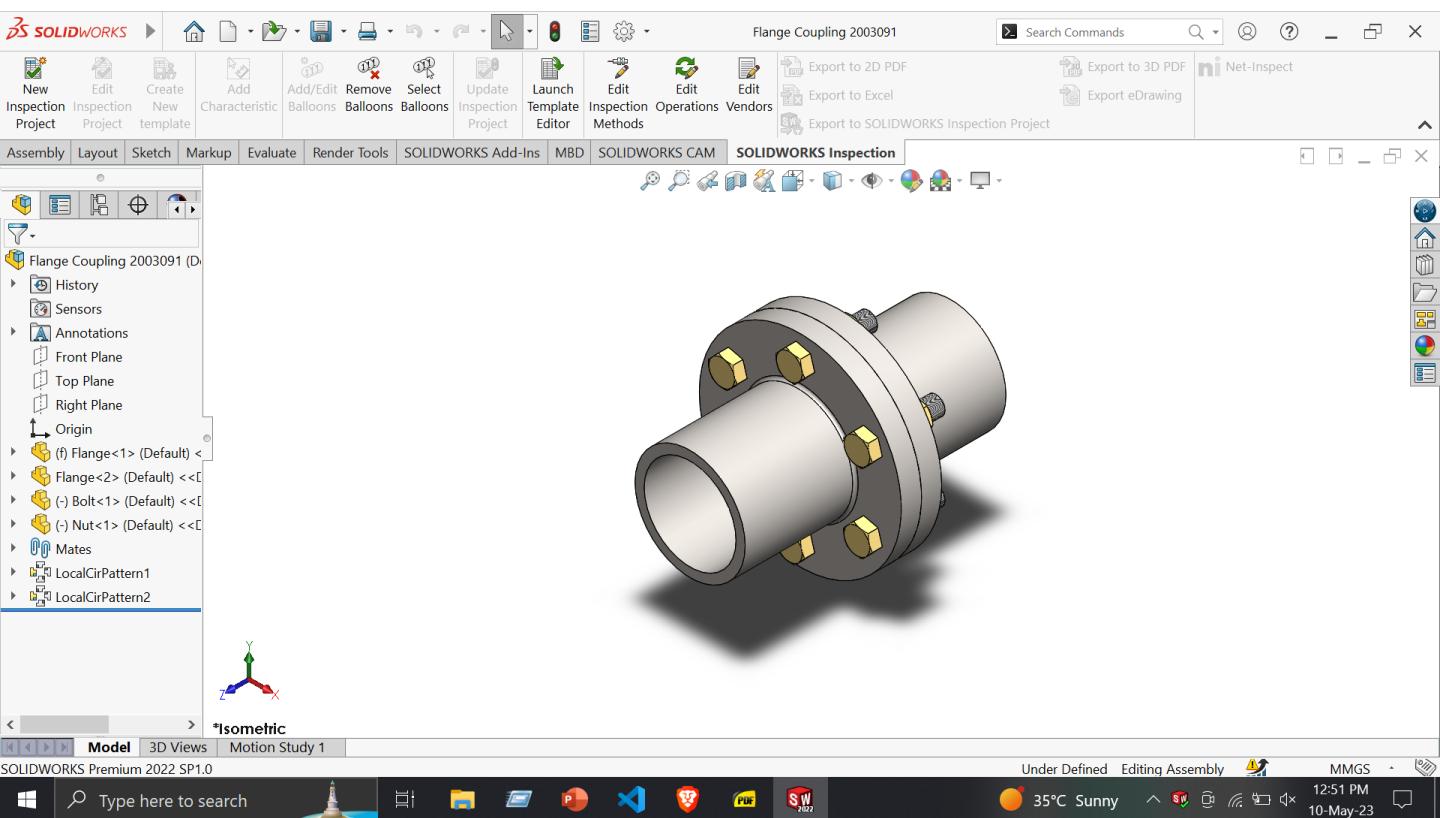
Features:

1. Extruded Boss/Base

Tools:

1. Line
2. Circle
3. Smart Dimension

Flange Coupling

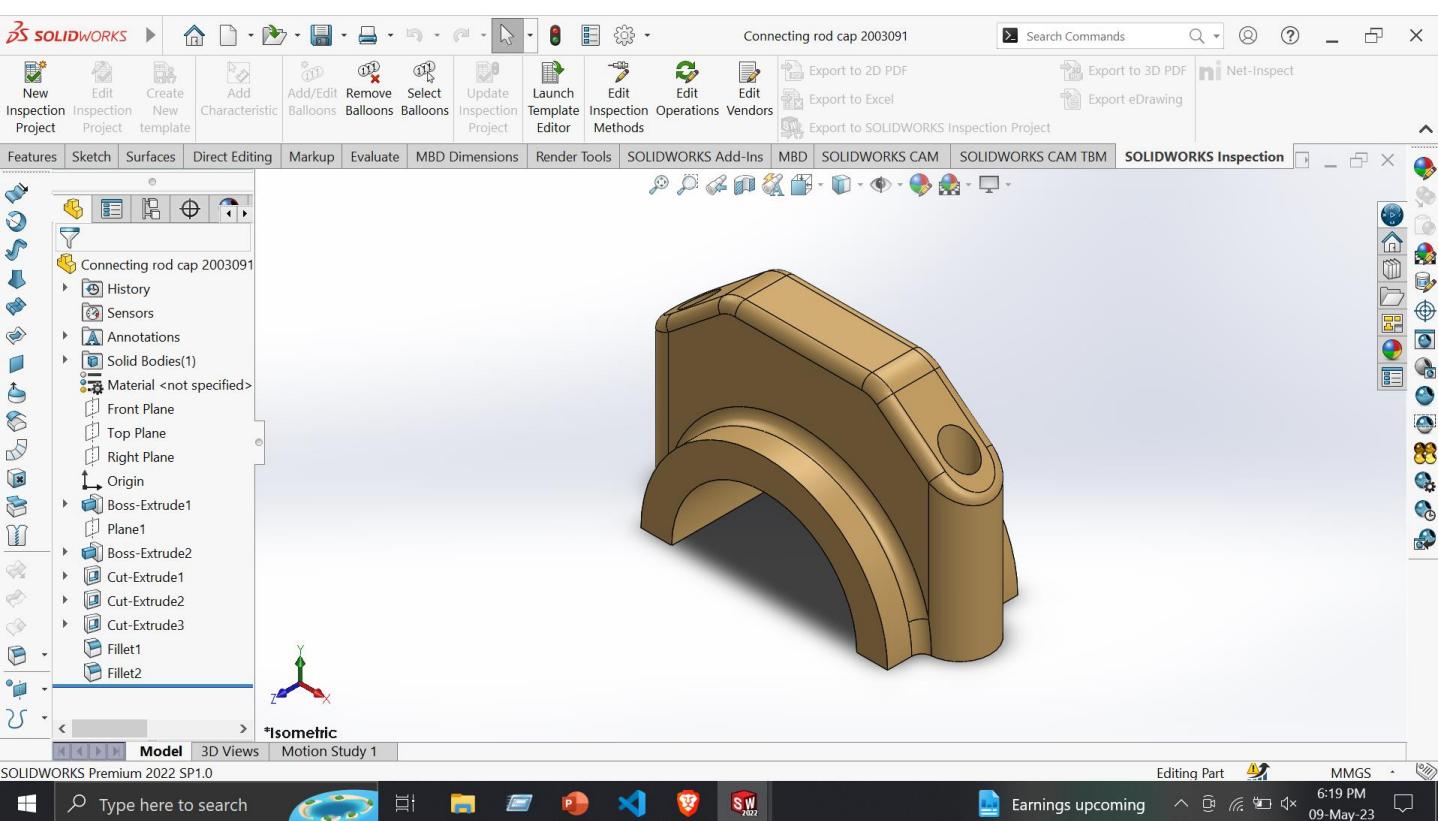


Assembly –

1. Insert Component
2. Mate
3. Concentric
4. Coincide
5. Width
6. Circular Pattern

Four Cylinder Engine

Part 1: Connecting rod Cap



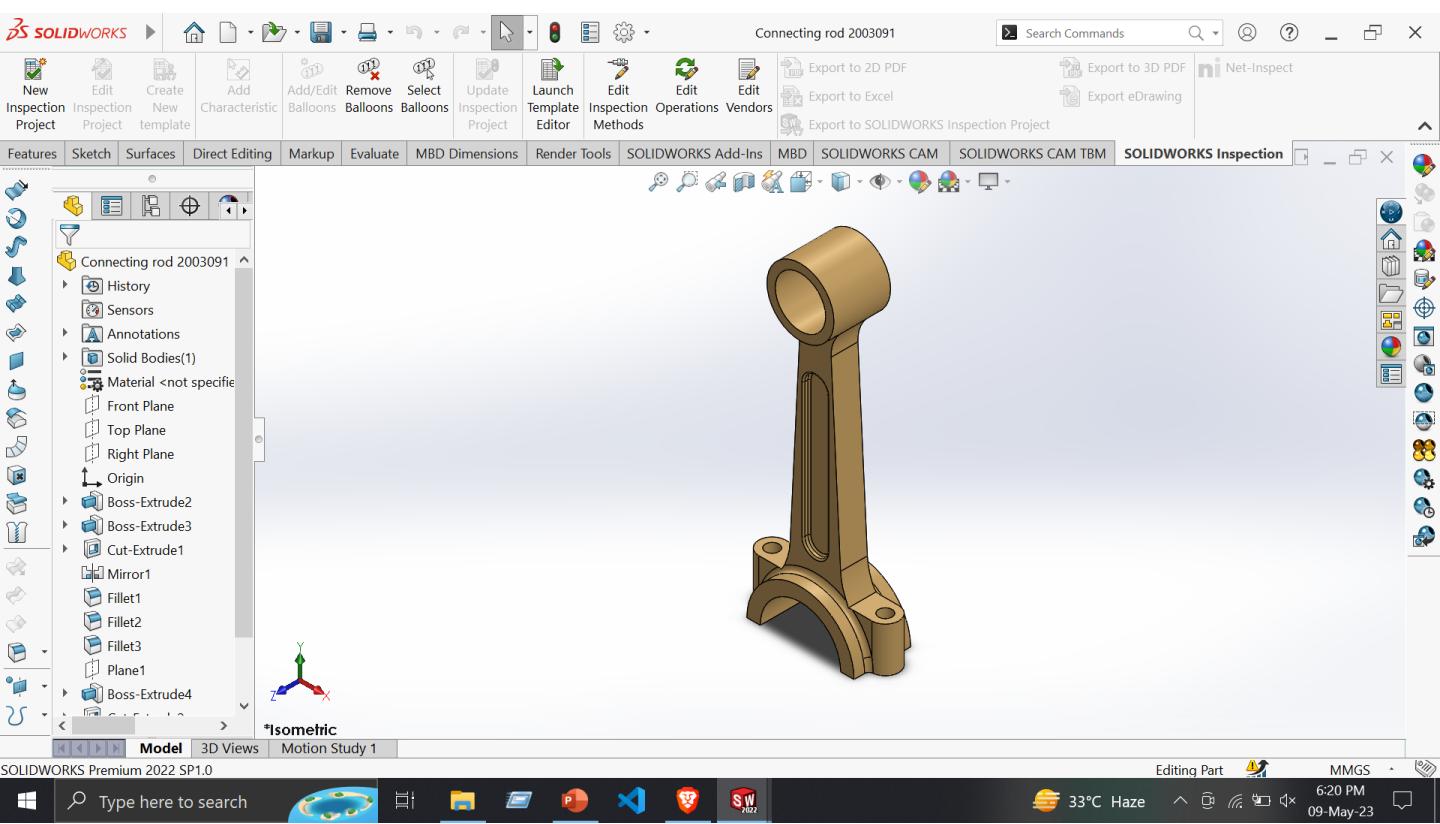
Features:

1. Extruded Boss/Base
2. Extruded Cut
3. Fillet

Tools:

1. Line
2. Circle
3. Smart Dimension
4. Circular pattern
5. Trim Entities
6. Convert Entities

Part 2: Connecting Rod



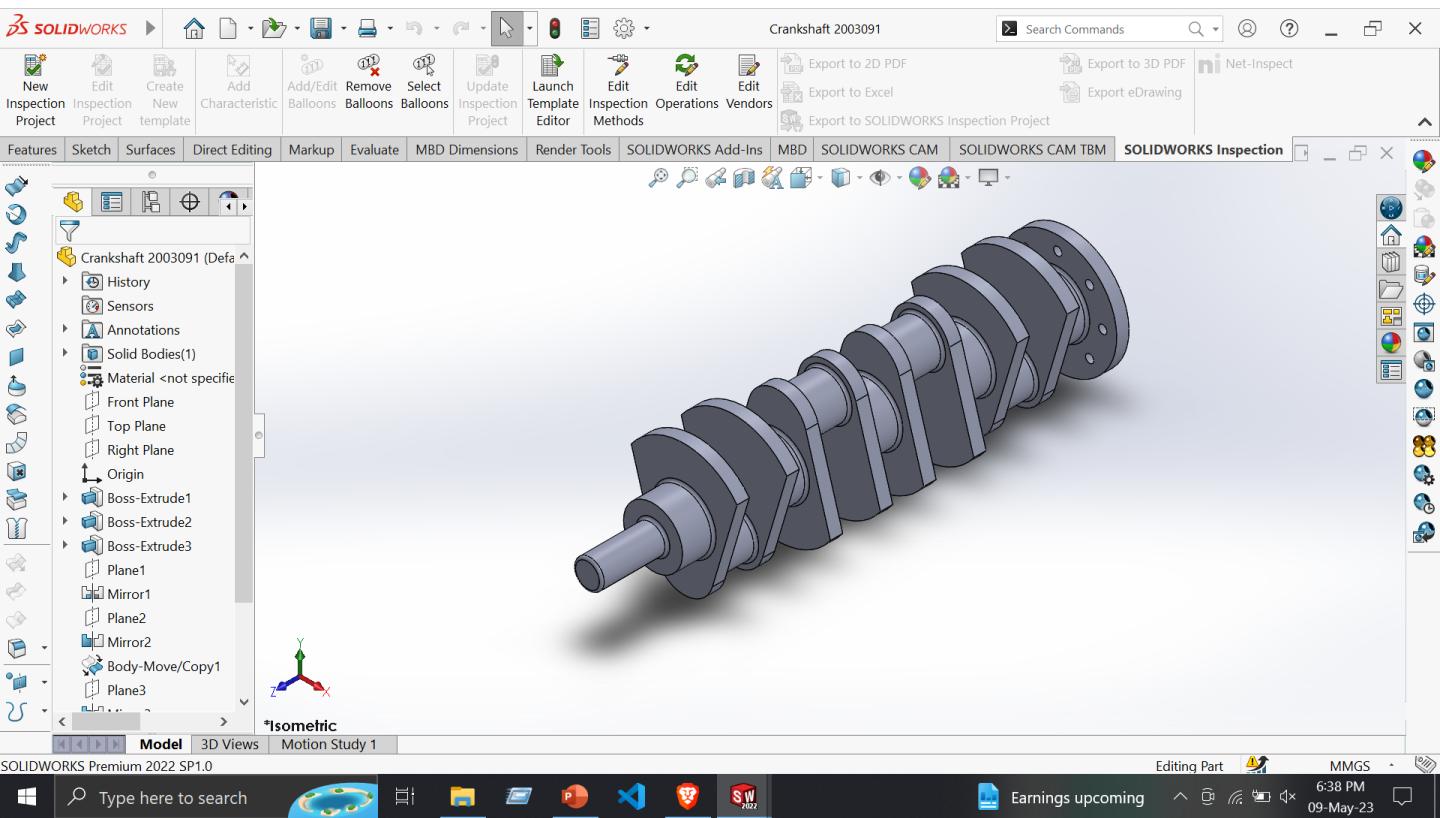
Features:

1. Extruded Boss/Base
2. Extruded Cut
3. Fillet

Tools:

1. Line
2. Circle
3. Smart Dimension
4. Circular pattern
5. Trim Entities
6. Convert Entities

Part 3: Crankshaft



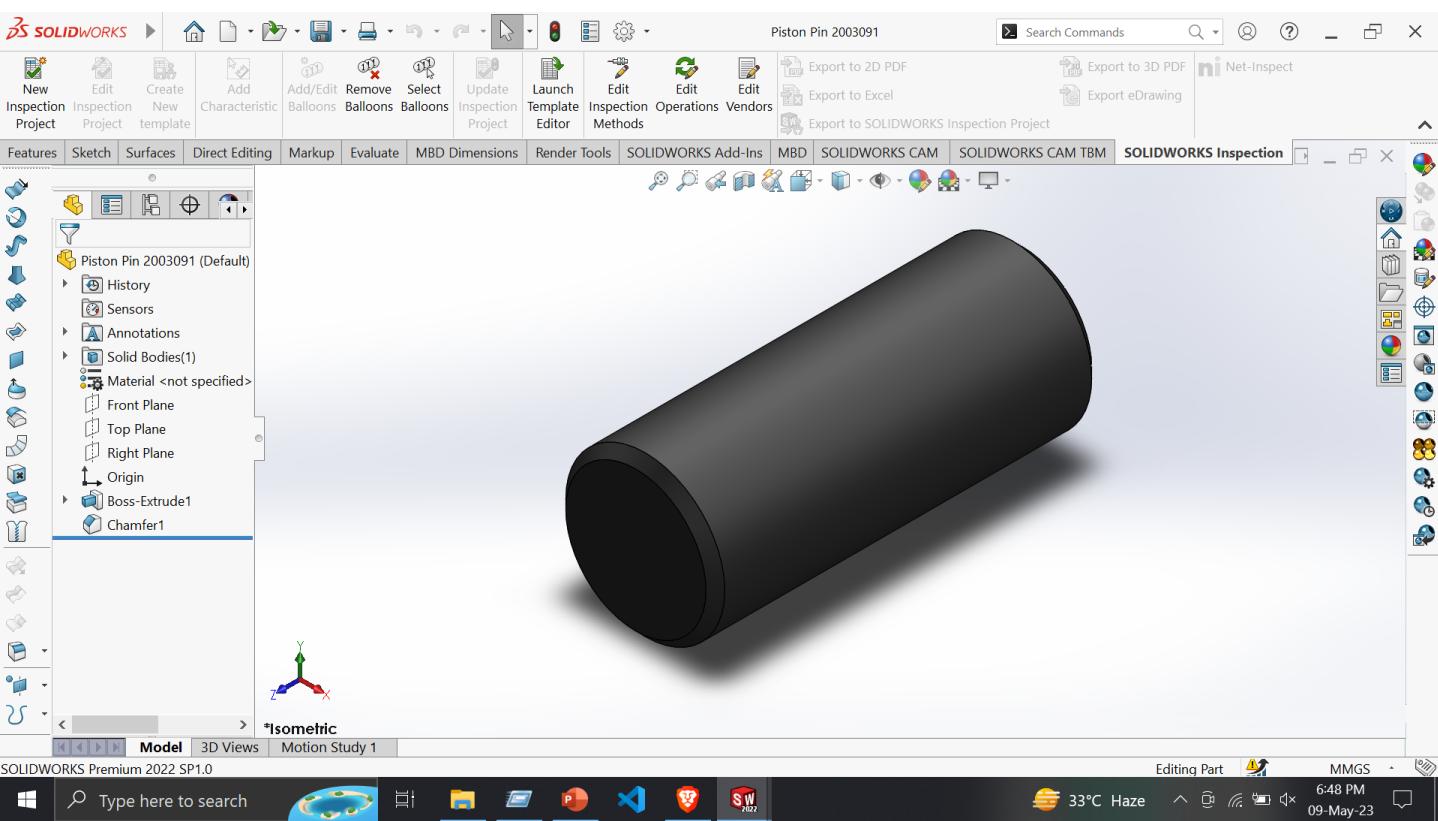
Features:

1. Extruded Boss/Base
2. Extruded Cut
3. Fillet

Tools:

1. Line
2. Circle
3. Smart Dimension
4. Circular pattern
5. Trim Entities
6. Convert Entities

Part 4: Piston Pin



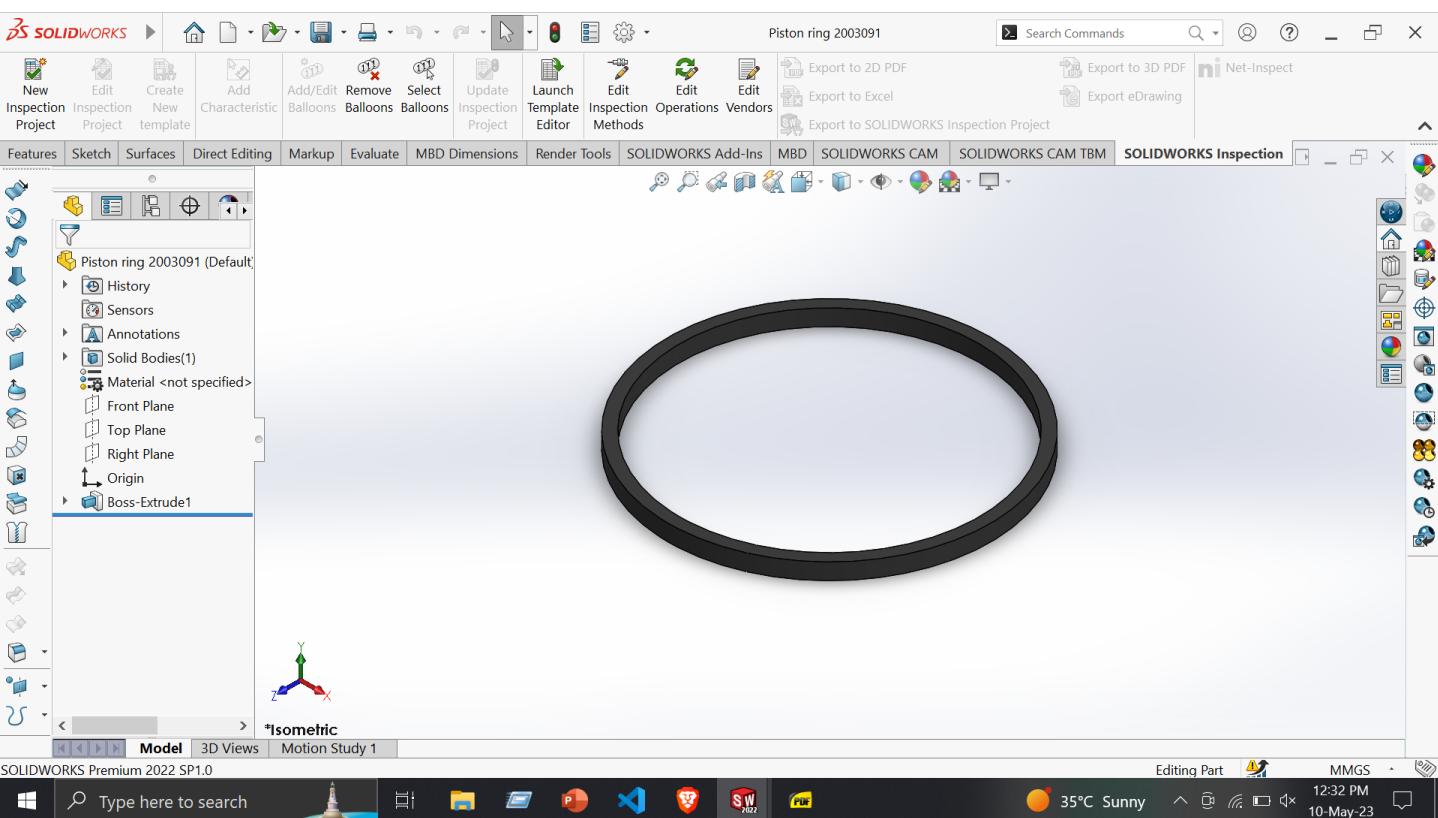
Features:

1. Extruded Boss/Base

Tools:

1. Line
2. Circle
3. Smart Dimension

Part 5: Piston Ring



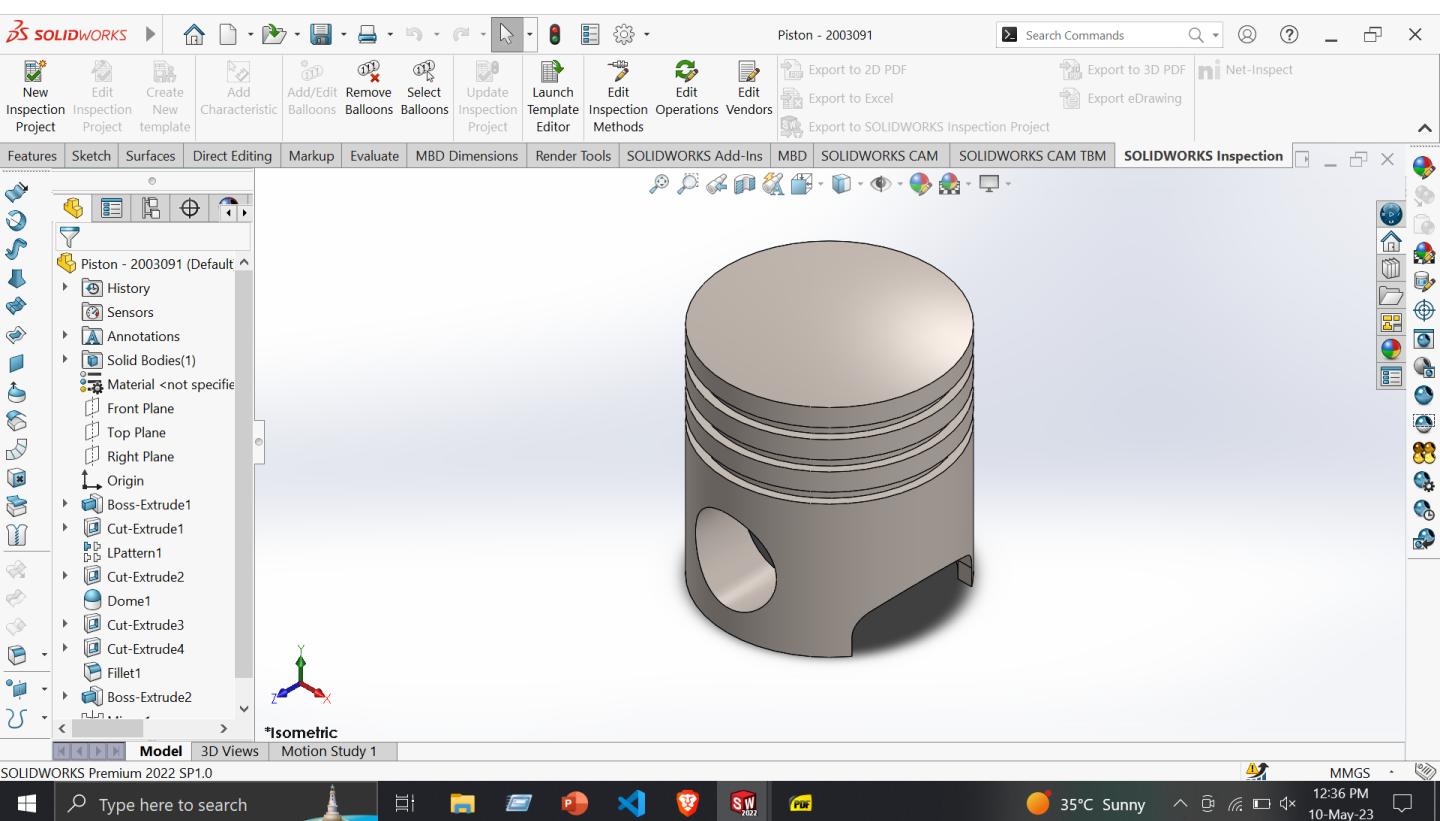
Features:

1. Extruded Boss/Base

Tools:

1. Circle
2. Smart Dimension

Part 6: Piston



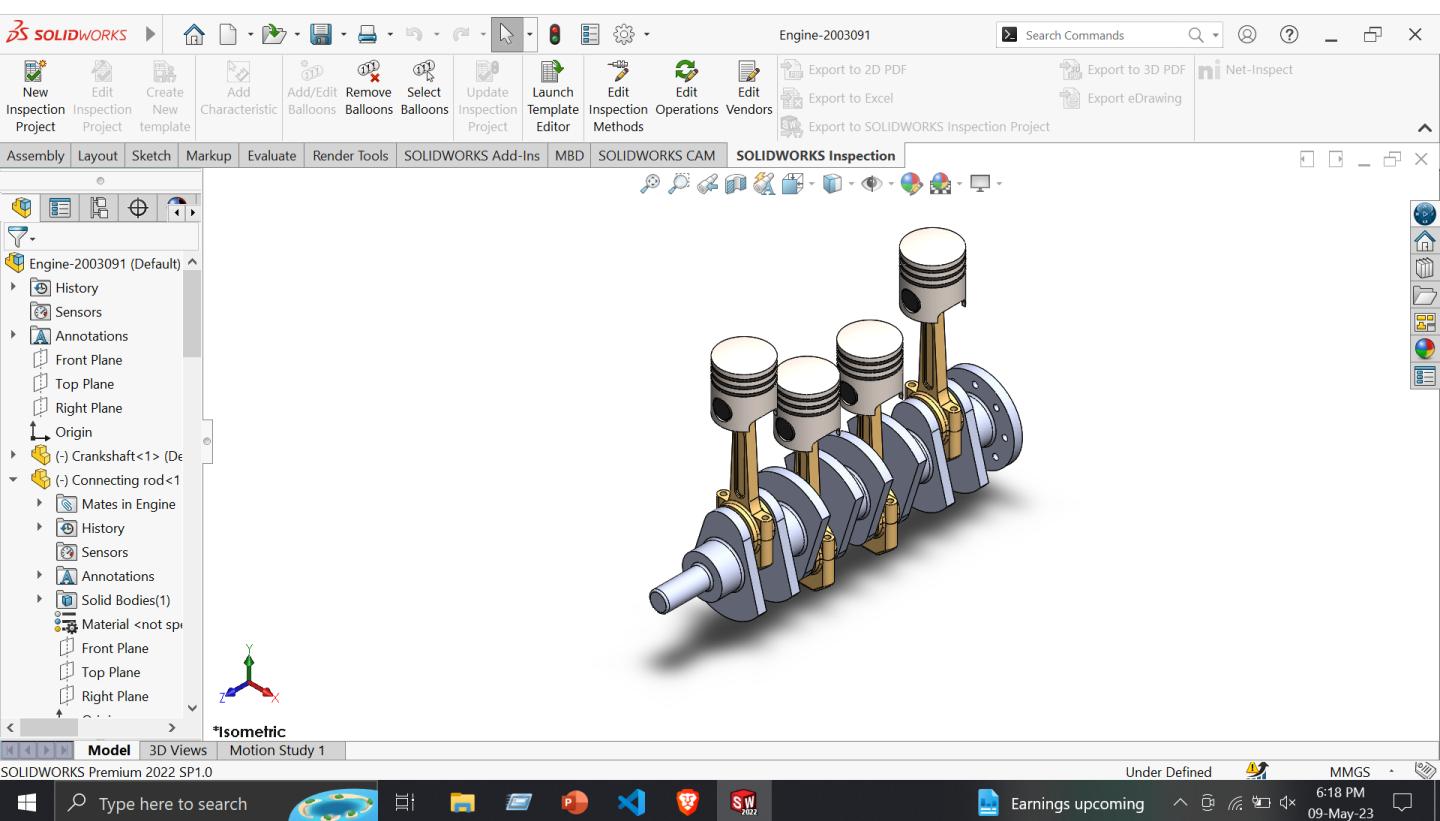
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Smart Dimension
4. Trim Entities

Four cylinder Engine

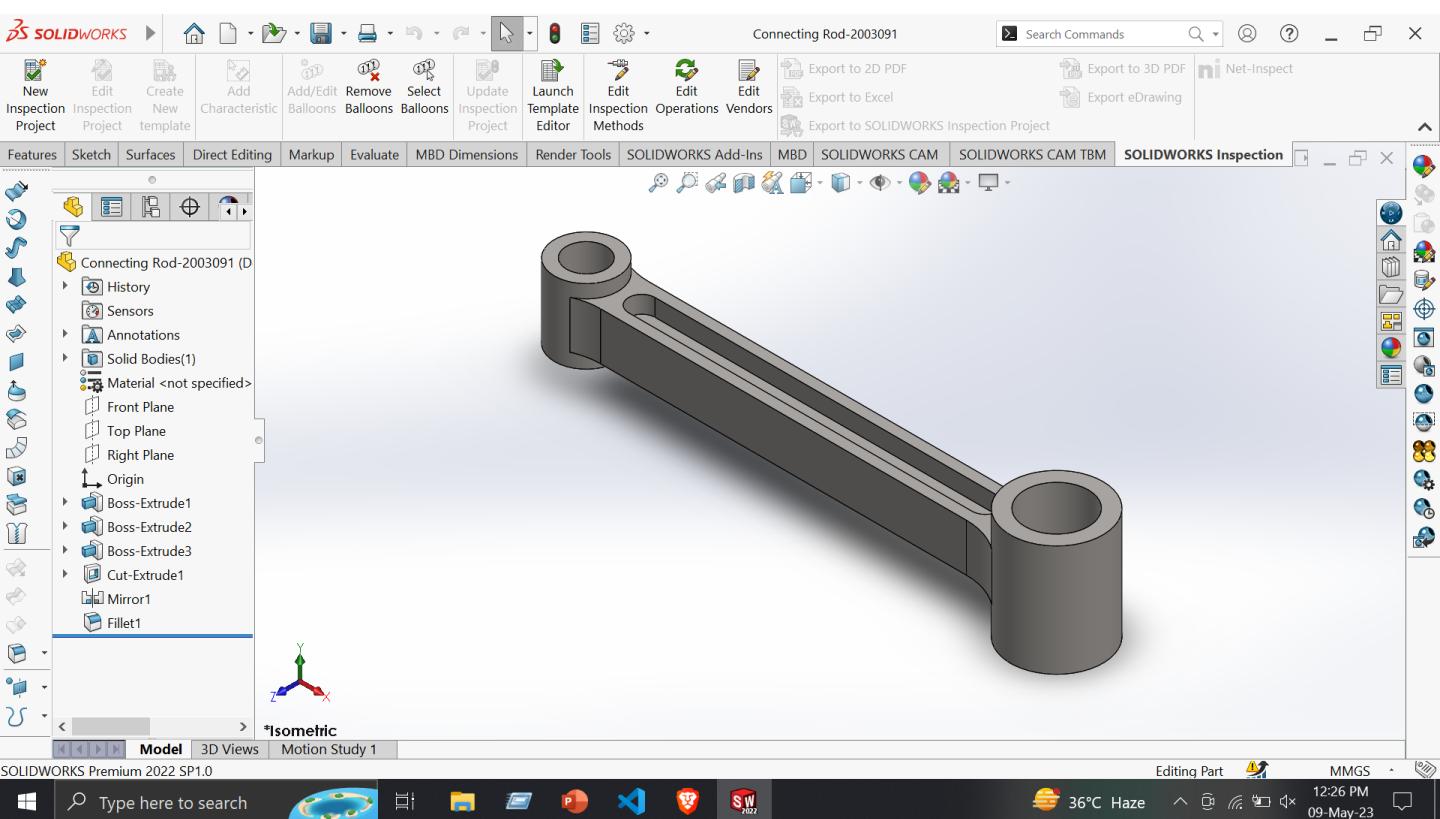


Assembly –

1. Insert Component
2. Sketch
3. Width
4. Circular pattern
5. Mirror
6. Coincide
7. Concentric

Radial Engine

Part 1: Connecting Rod



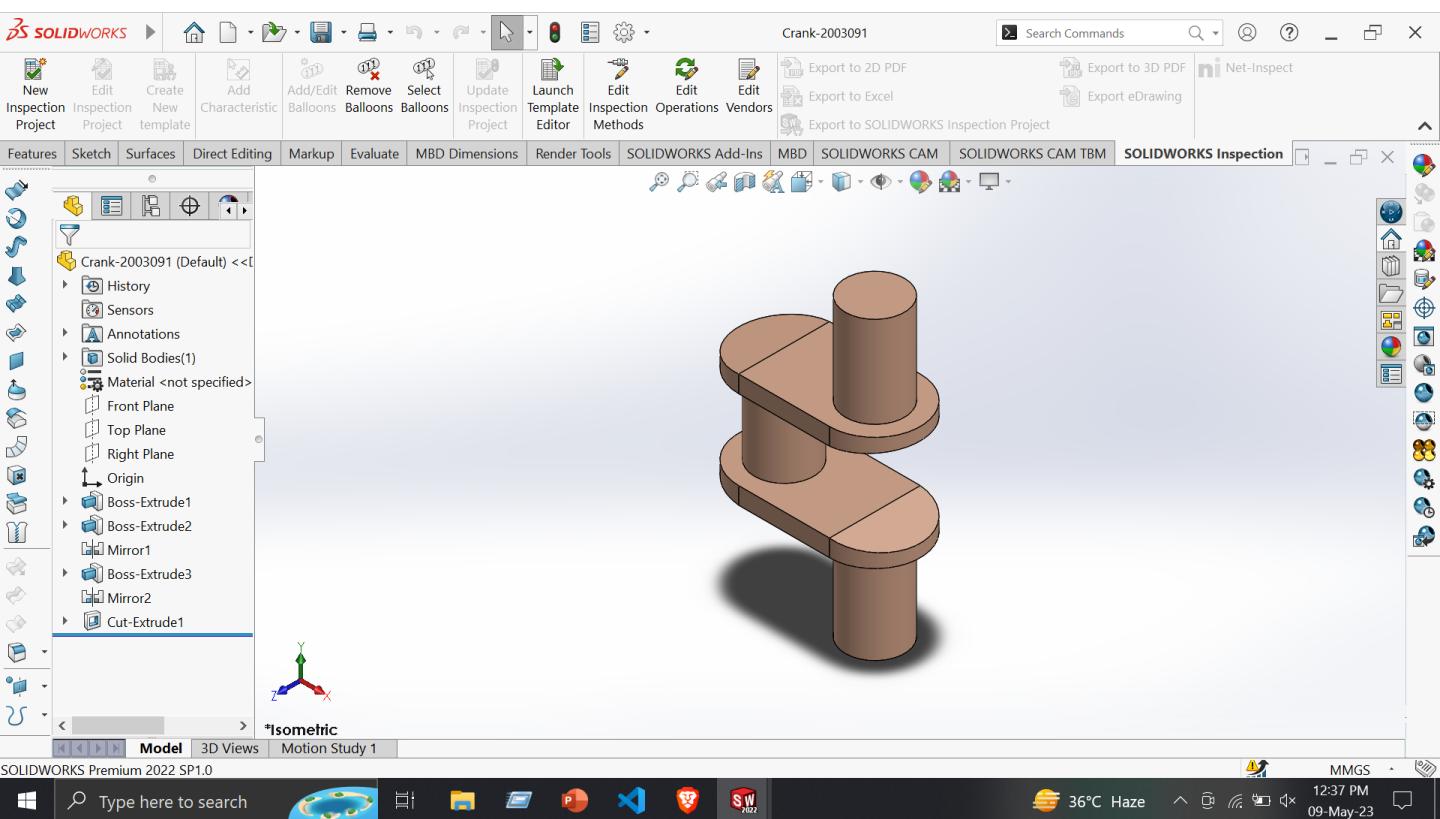
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Three point Arc
4. Smart Dimension
5. Trim Entities

Part 2: Crank



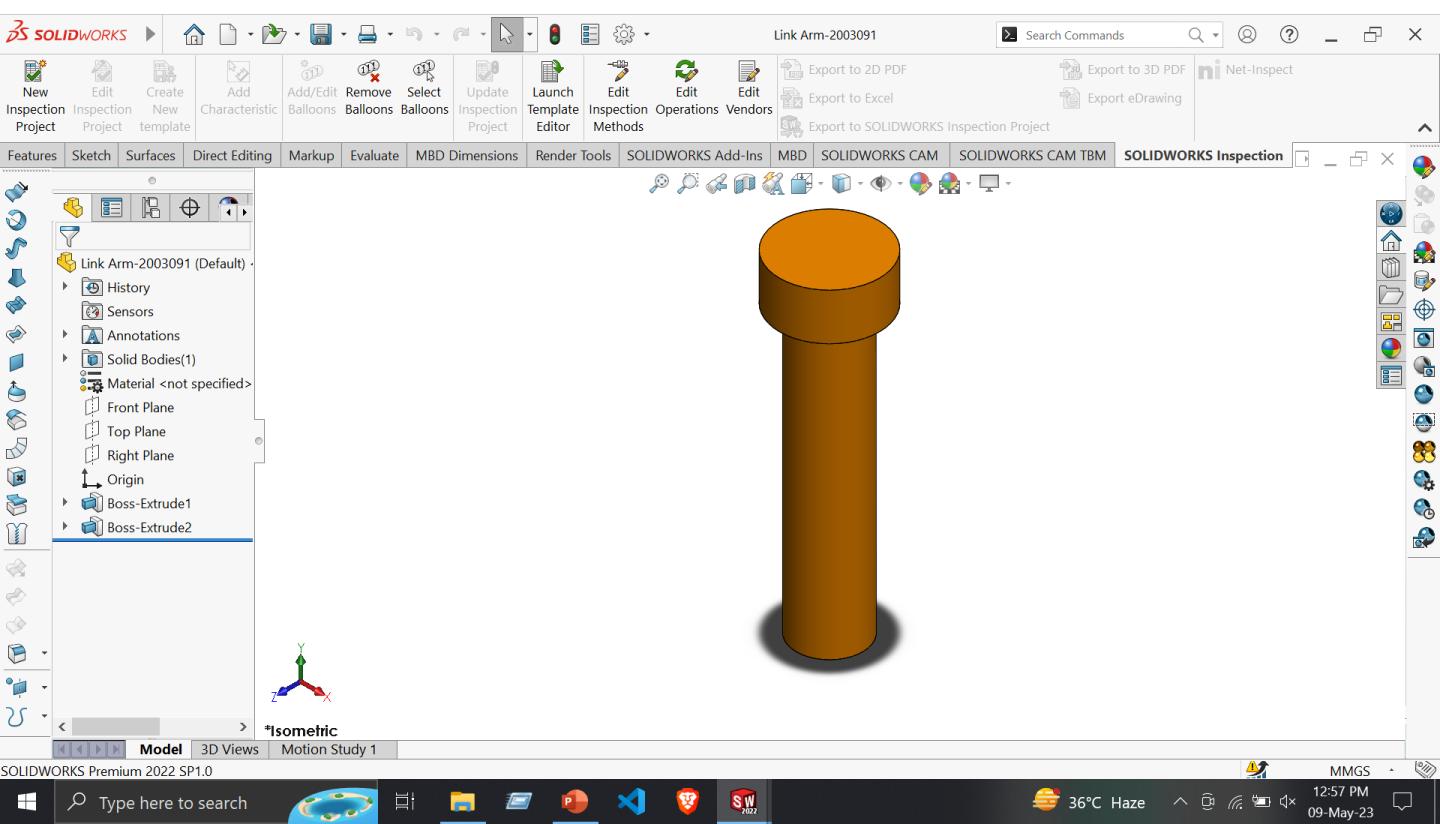
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Smart Dimension

Part 3: Link Arm



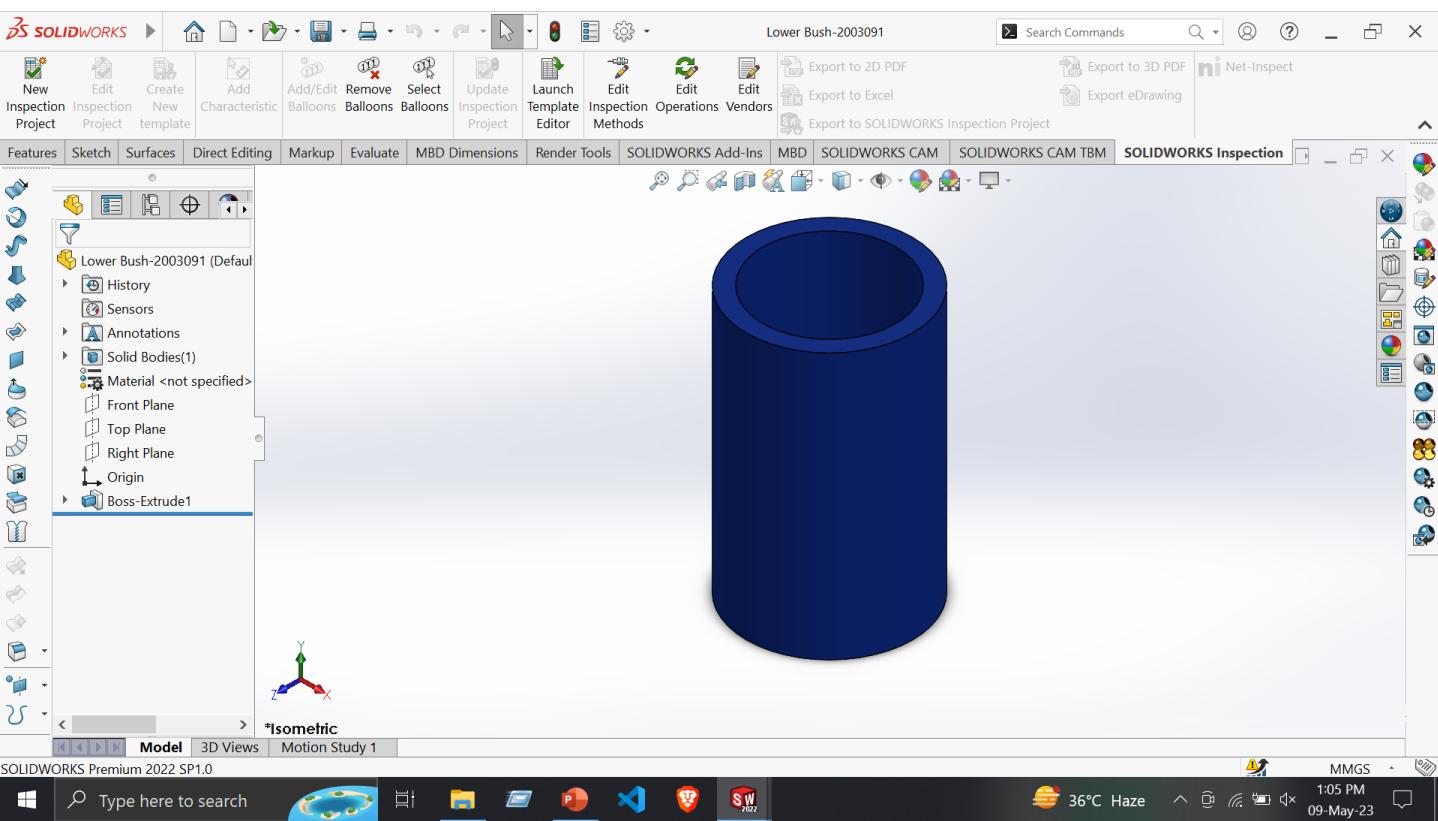
Features:

1. Extruded Boss/Base

Tools:

1. Line
2. Circle
3. Smart Dimension

Part 4: Lower Bush



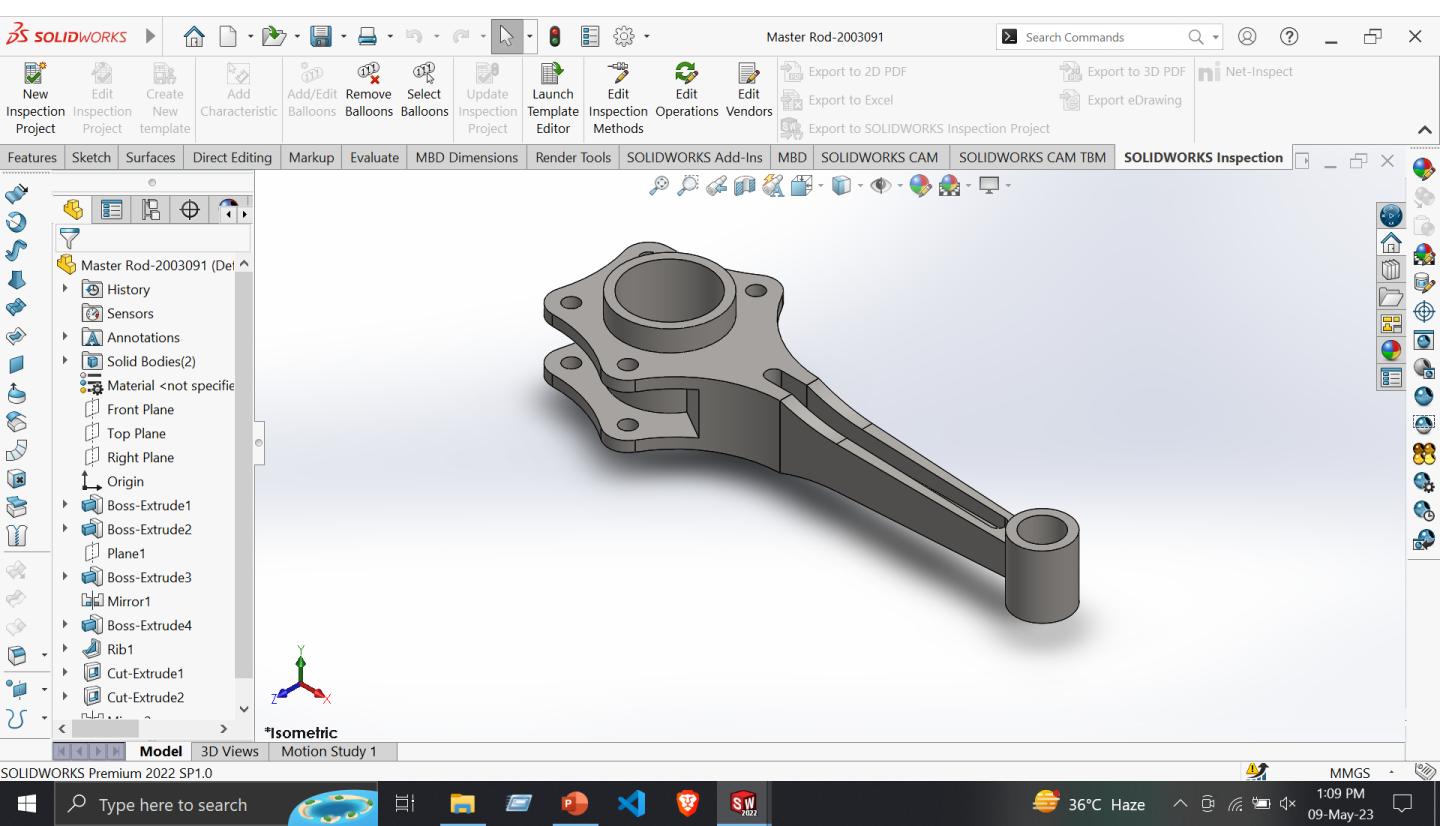
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Smart Dimension

Part 5: Master rod



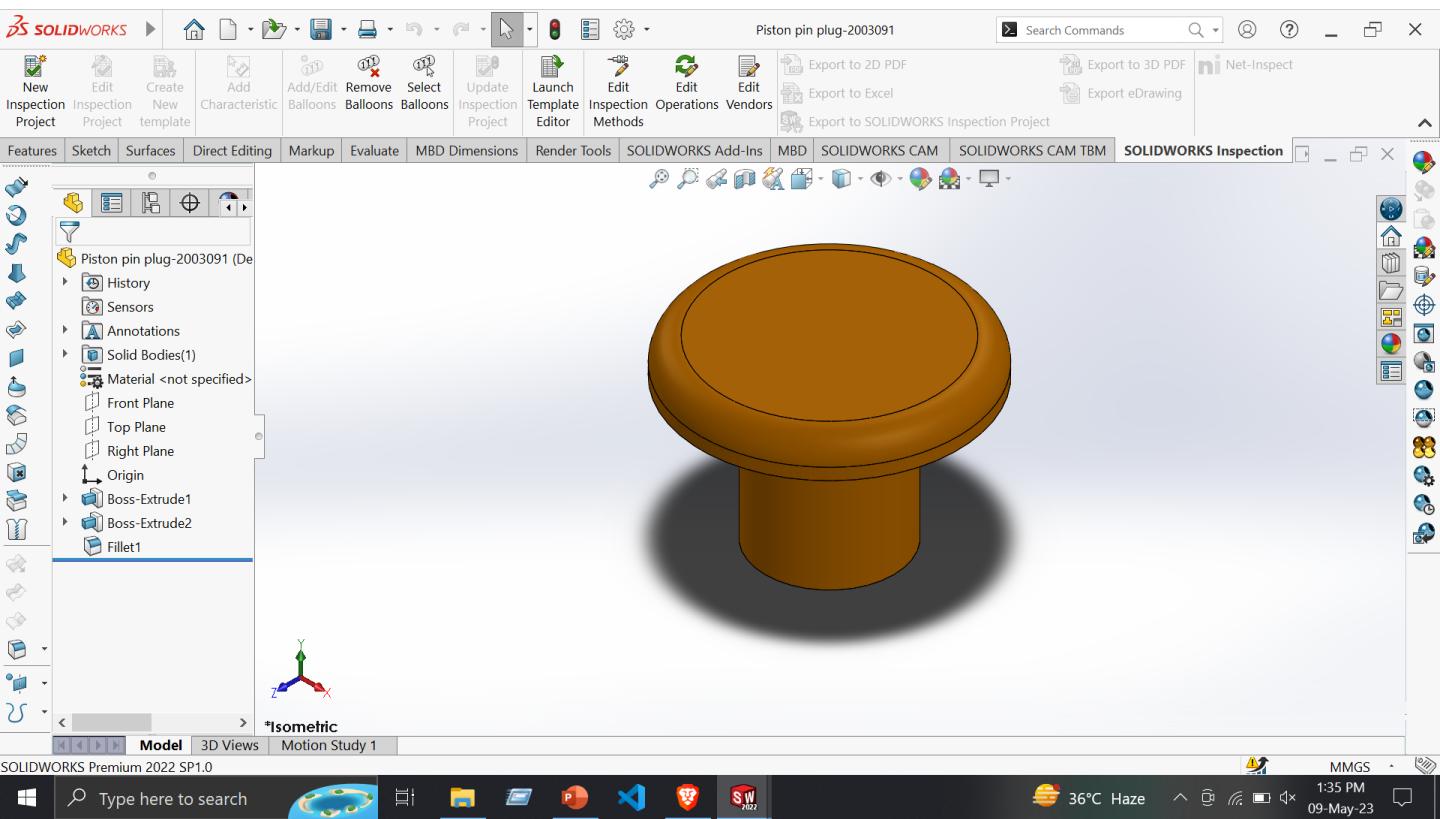
Features:

1. Extruded Boss/Base
2. Extruded Cut
3. Fillet

Tools:

1. Line
2. Centerline
3. Circle
4. Construction Geometry
5. Smart Dimension

Part 6: Piston pin plug



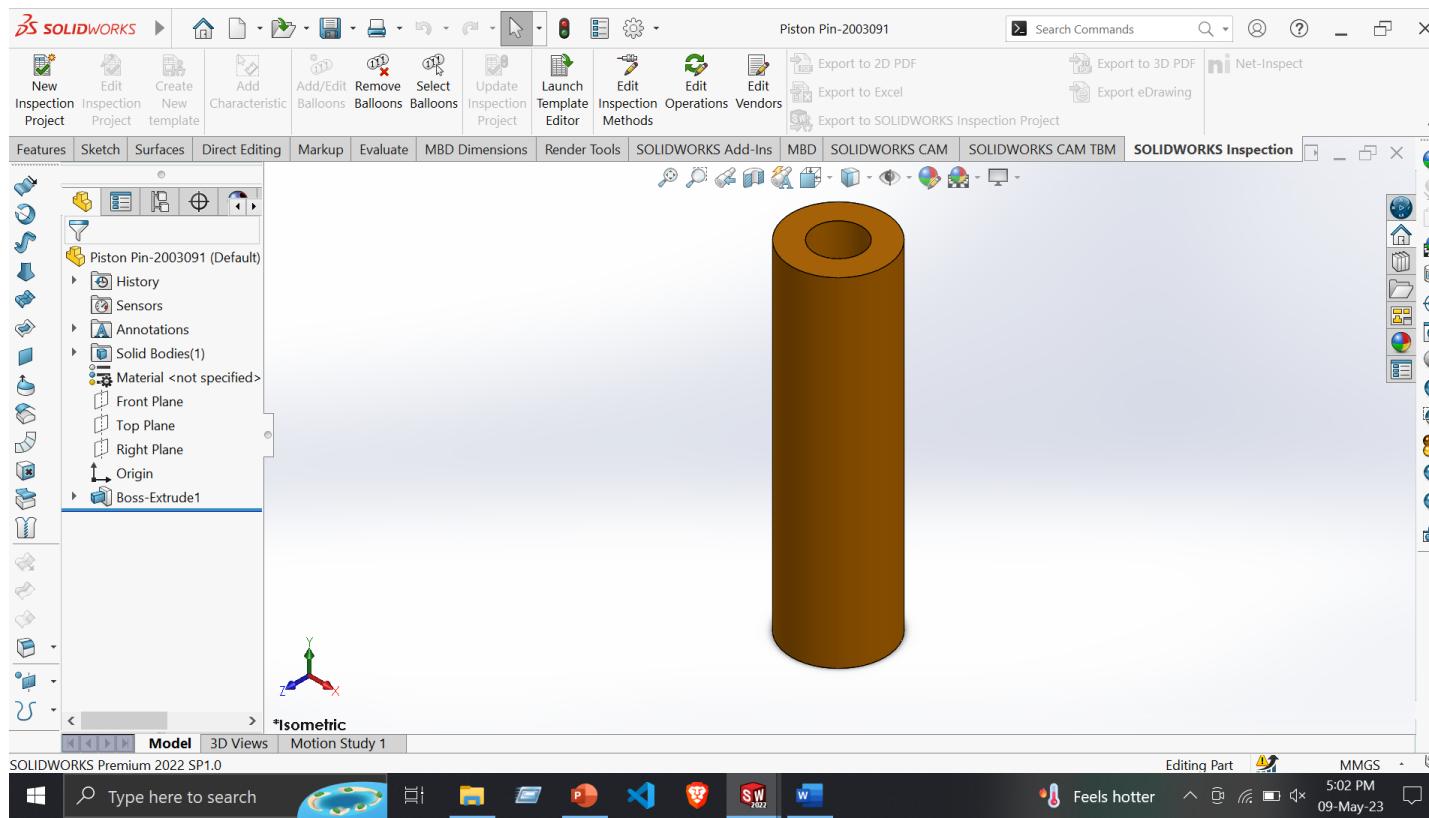
Features:

1. Extruded Boss/Base
2. Fillet

Tools:

1. Line
2. Circle
3. Smart Dimension

Part 7: Piston Pin



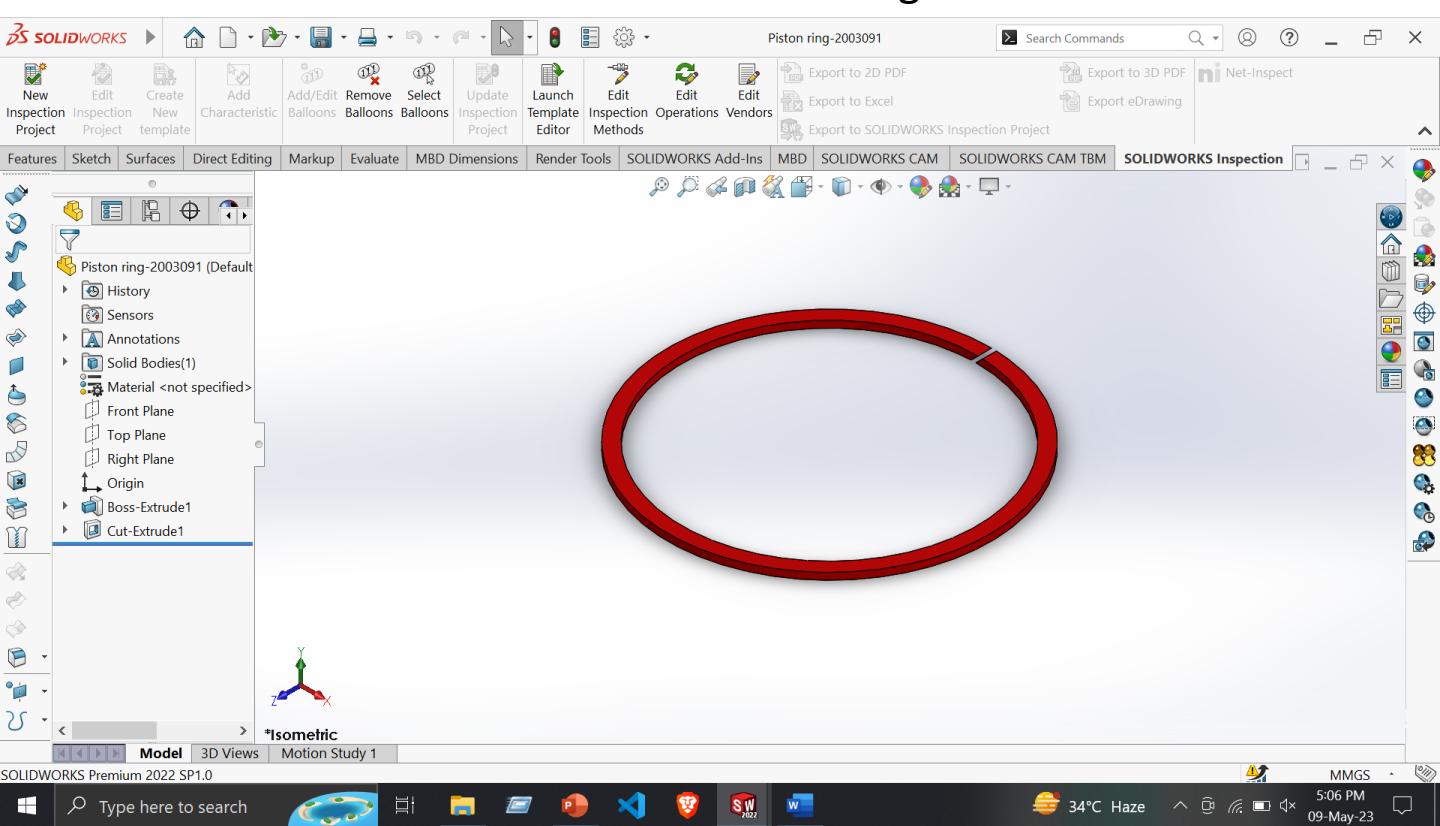
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Smart Dimension

Part 8: Piston ring



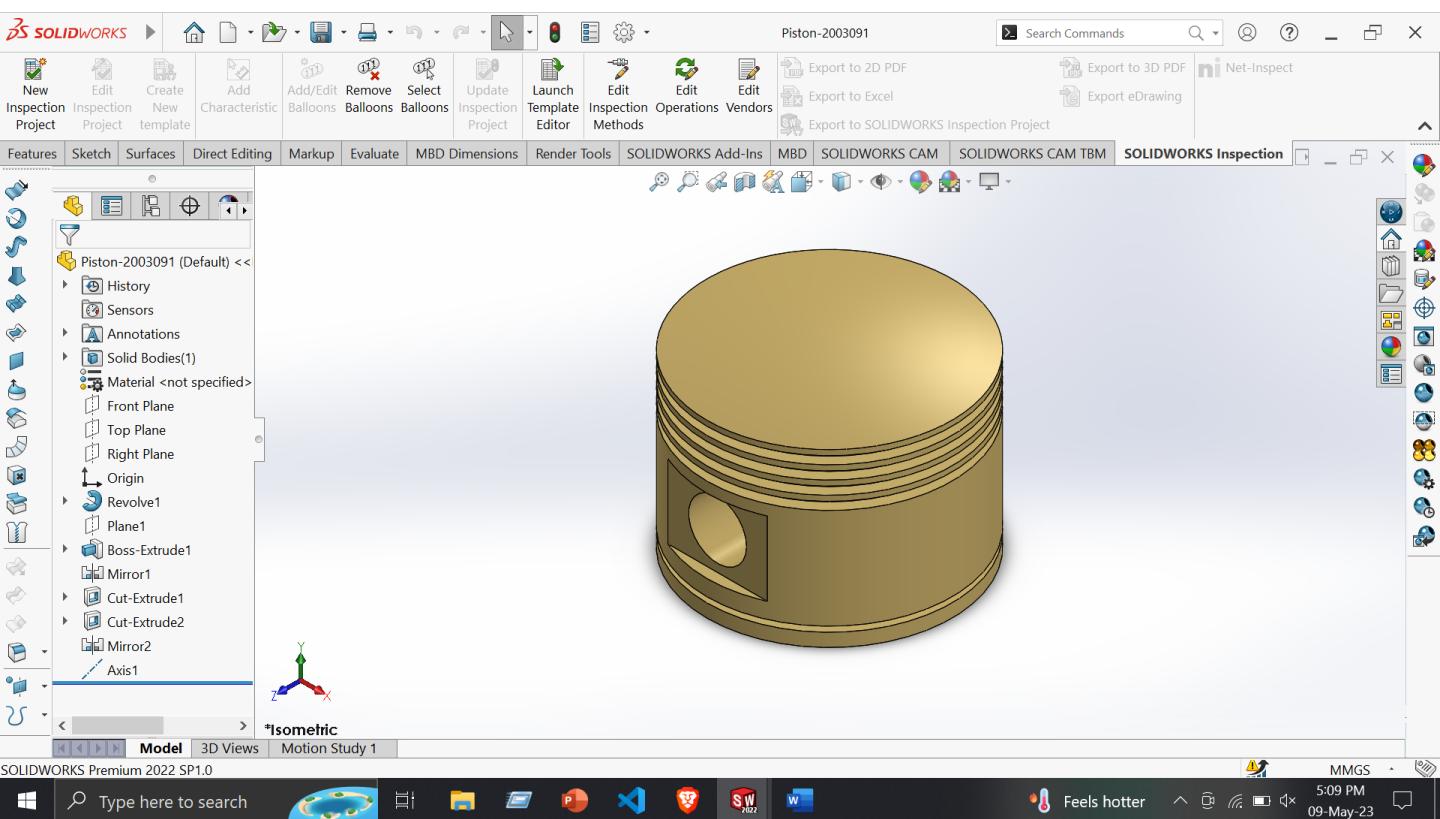
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Smart Dimension

Part 9: Piston



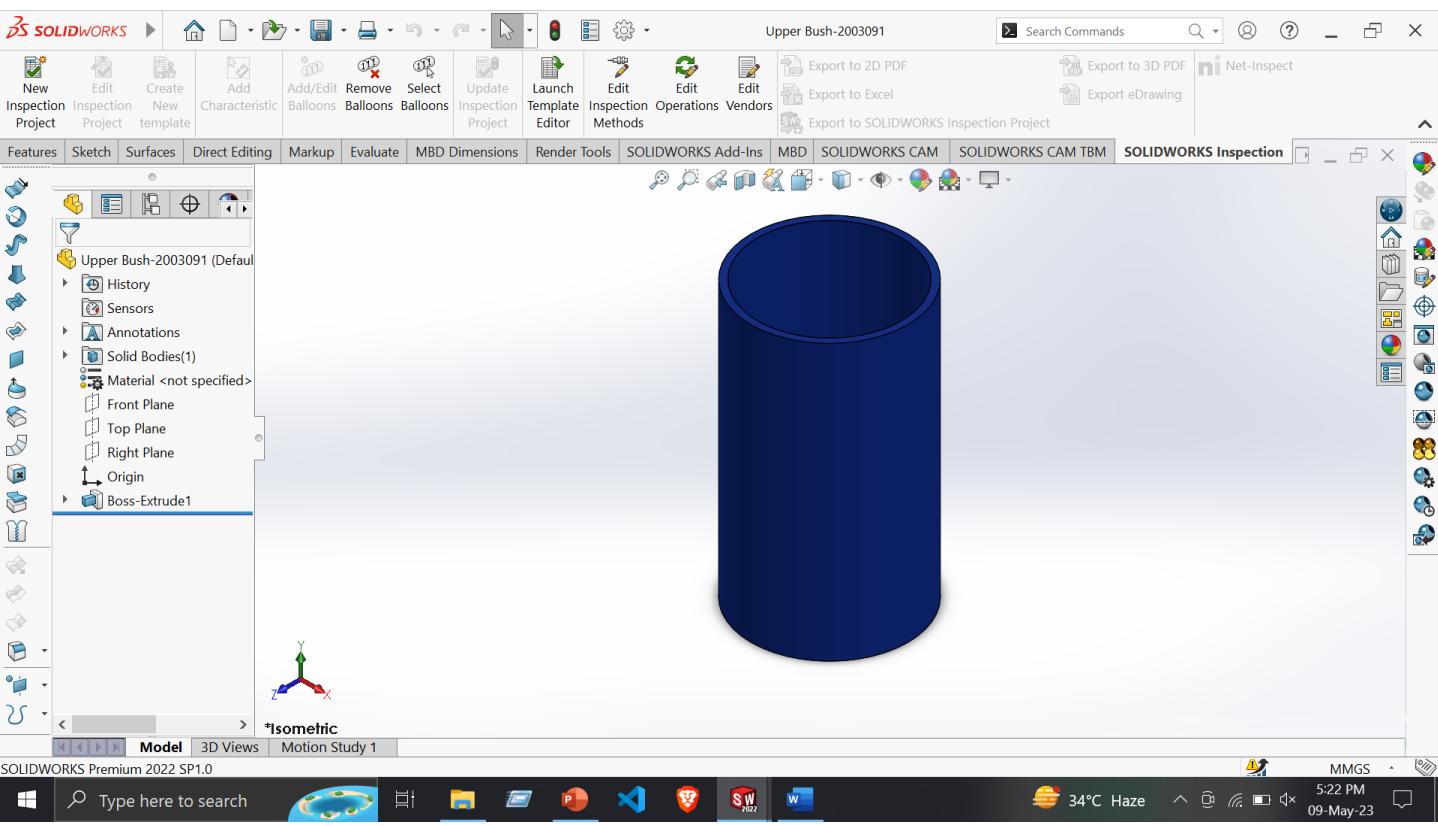
Features:

1. Extruded Boss/Base
2. Revolved Boss/Base
3. Extruded Cut
4. Fillet

Tools:

1. Line
2. Centerline
3. Circle
4. Construction Geometry
5. Smart Dimension

Part 10: Upper Bush



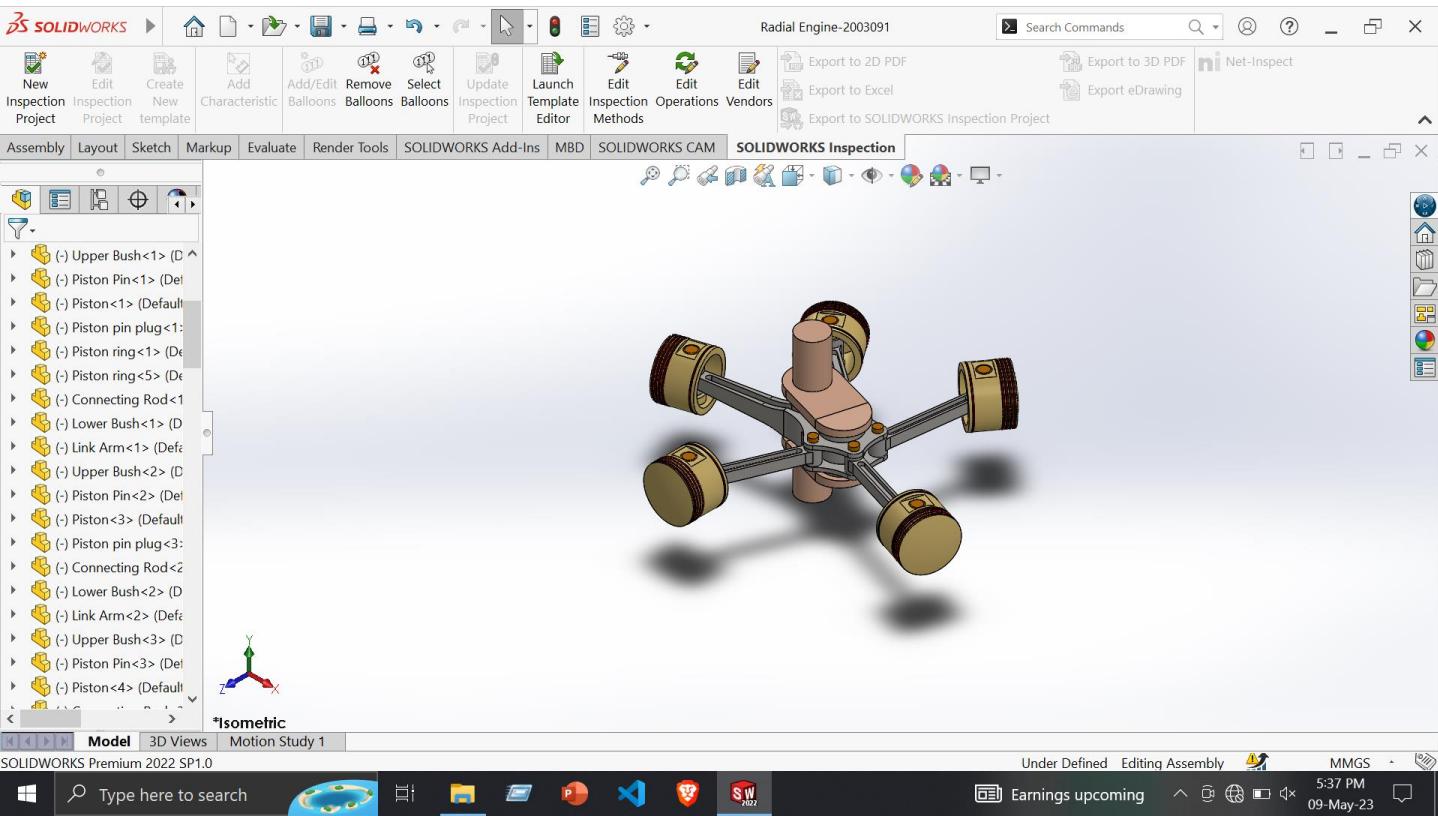
Features:

1. Extruded Boss/Base
2. Extruded Cut

Tools:

1. Line
2. Circle
3. Smart Dimension

Radial Engine



Assembly –

1. Insert Component
2. Mate
3. Mirror
4. Copy With Mate
5. Coincide
6. Concentric