

Item No.	Quantity	Name	Material	Item No.	Quantity	Name	Material
1	1	Bearing Housing	Steel 8620	30	1	Hex socket head cap screw M10x1.50 x 20	Steel
2	1	Mounting Shaft	Steel 1020	31	2	Snap Ring OD 25mm	Steel
3	1	Mounting Tab	Steel 1020	32	1	Snap Ring ID 48mm	Steel
4	1	Adjuster Tab	Steel 1020	33	1	Key 3x3x85	Steel 1020
5	1	Mounting Spacer	Steel 1020	34	4	Hex socket head cap screw M5x0.80 x 20	Steel
6	2	Separator Wheel	HDPE (High-Density Polyethylene)				
7	1	Adjuster Plate	Steel 1020				
8	1	Sensor Plate	Steel 1020				
9	1	Cylinder Clamp Cap	Steel 8620				
10	1	Axle Shaft	Steel 8620				
11	1	Adjuster Post	Steel 4130				
12	1	Bearing Spacer	Steel 1020				
13	1	Housing Cap	Steel 1020				
14	1	Axle Cap	Steel 4130				
15	4	Spacer 15mm	Steel 1020				
16	1	Spacer 5mm	Steel 1020				
17	1	Collar	Steel 1020				
18	1	Seal Ring	PTFE				
19	1	Festo Cylinder Asm DFSP-20-15-PS-PA	Aluminum - 2024				
20	1	Locknut SKF KM-9	Steel 4130				
21	1	Balluff Sensor BOS_18E_PS_1XA_SA1_S4p	Stainless Steel				
22	2	Jam Nut M18x1	Stainless Steel				
23	1	O-Ring 28x3	Silicone Rubber				
24	1	Bearing Assembly SKF 16005	Steel 8620				
25	1	Bearing Assembly SKF 6005	Steel 8620				
26	1	Seal 25x37x7 CRW1 R	Steel				
27	1	Hex socket head cap screw M10x1.50 x 30	Steel				
28	2	Plain washer normal grade A M10	Steel				
29	1	Dog point hex socket set screw M8x1.25 x 10	Steel				

UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES  
.XX = ±.0- ANGULAR = ± °  
.XXX = ±.00- FRACTIONAL = ±  
.XXXX = ±.000-

SURFACE FINISH ✓

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND REMOVE BURRS

THIRD ANGLE PROJECTION

MATERIAL SEE BOM

VOLUME

819031 mm<sup>3</sup>

SCALE

WEIGHT

3.694 kg

SHEET

1 of 3

Ferris State University

ROTARY SEPARATOR ASSEMBLY  
BILL OF MATERIALS

SIZE B DWG NO. M8-2019-A-000 REV.

4

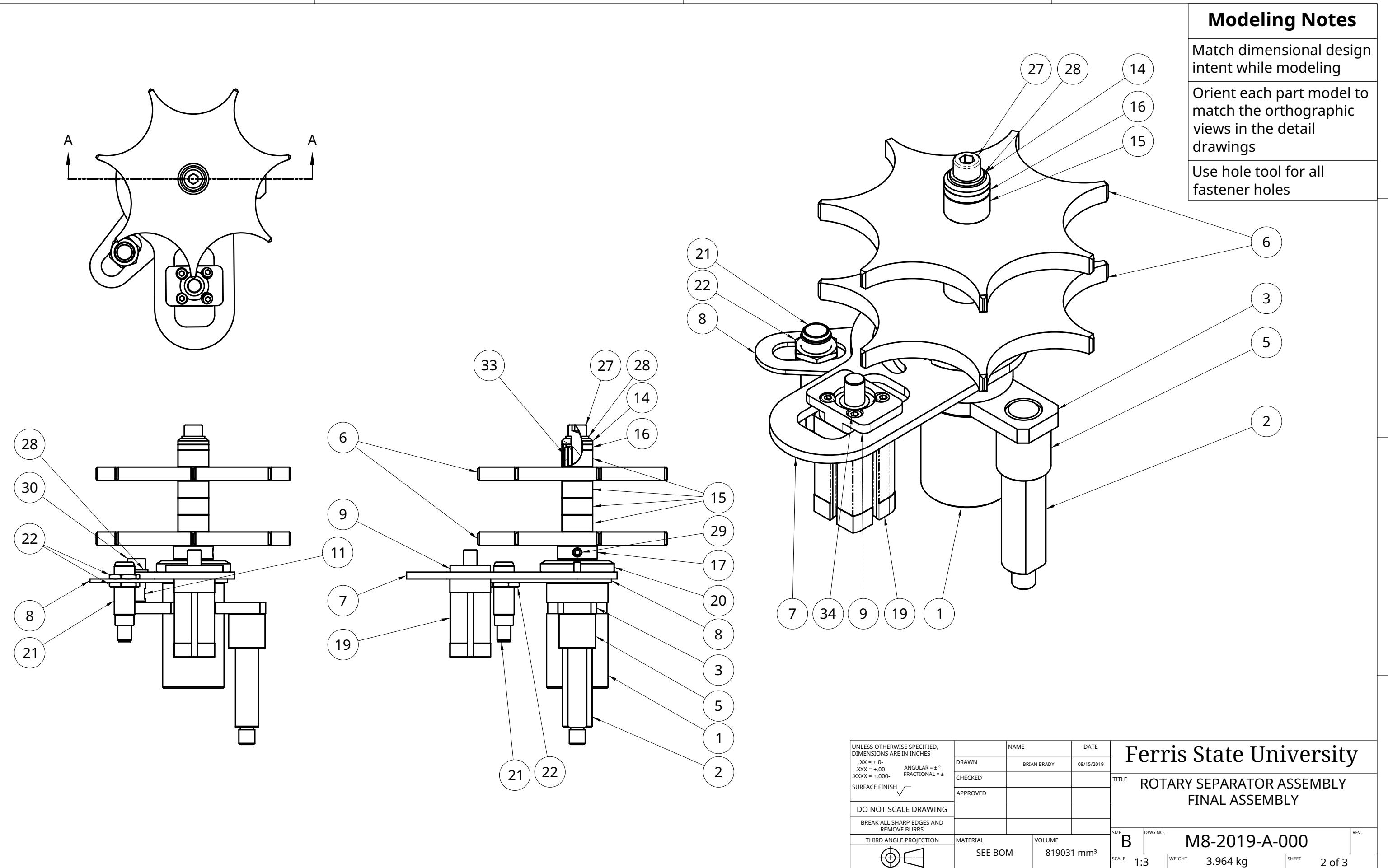
3

2

1

D

D



## Modeling Notes

## Match dimensional design intent while modeling

Orient each part model to match the orthographic views in the detail drawings

Use hole tool for all fastener holes

Ferris State University

## **ROTARY SEPARATOR ASSEMBLY FINAL ASSEMBLY**

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE	<h1>Ferris State University</h1> <p><b>TITLE</b> ROTARY SEPARATOR ASSEMBLY FINAL ASSEMBLY</p>			
$.XX = \pm 0^\circ$ $XXX = \pm .00$ $XXXX = \pm .000$ <b>SURFACE FINISH</b> ✓		DRAWN	BRIAN BRADY				08/15/2019
		CHECKED					
		APPROVED					
<b>DO NOT SCALE DRAWING</b>							
<b>BREAK ALL SHARP EDGES AND REMOVE BURRS</b>							
<b>THIRD ANGLE PROJECTION</b>		MATERIAL  SEE BOM	VOLUME  819031 mm <sup>3</sup>	<b>SIZE</b>  B	<b>DWG NO.</b>  M8-2019-A-000	<b>REV.</b>	
		SCALE	1:3	WEIGHT	3.964 kg	SHEET 2 of 3	

4

3

2

1

D

D

C

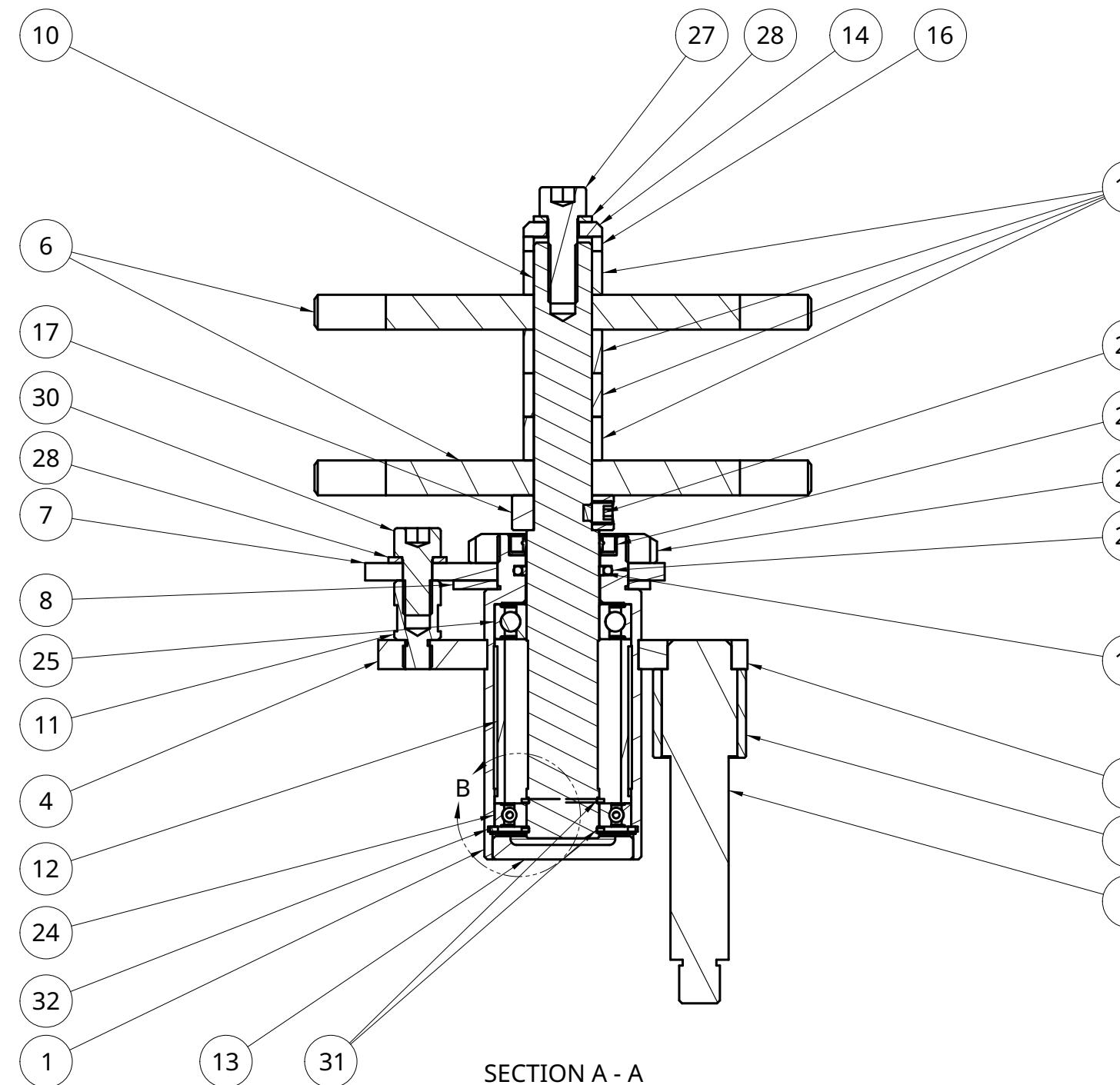
C

B

B

A

A



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0- .XXX = ±.00- .XXXX = ±.000- ANGULAR = ± ° FRACTIONAL = ±		NAME	DATE
SURFACE FINISH ✓	DRAWN	BRIAN BRADY	08/15/2019
DO NOT SCALE DRAWING	CHECKED		
BREAK ALL SHARP EDGES AND REMOVE BURRS	APPROVED		
TITLE ROTARY SEPARATOR ASSEMBLY FINAL ASSEMBLY			
THIRD ANGLE PROJECTION	MATERIAL	VOLUME	SIZE B DWG NO. M8-2019-A-000 REV.
	SEE BOM	819031 mm <sup>3</sup>	SCALE 1:3 WEIGHT 3.964 kg SHEET 3 of 3

4

3

2

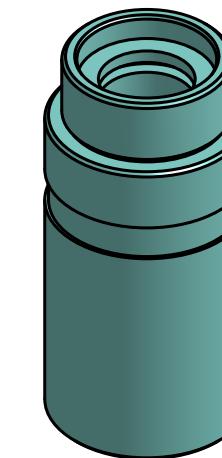
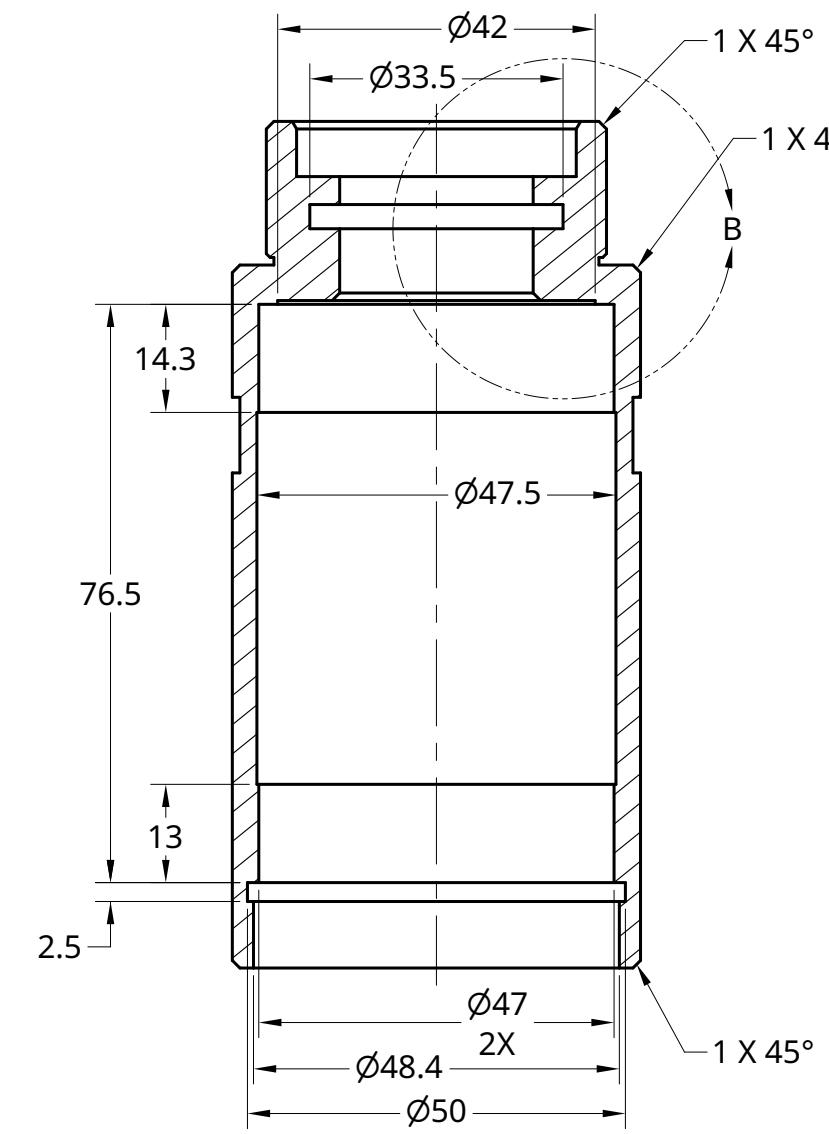
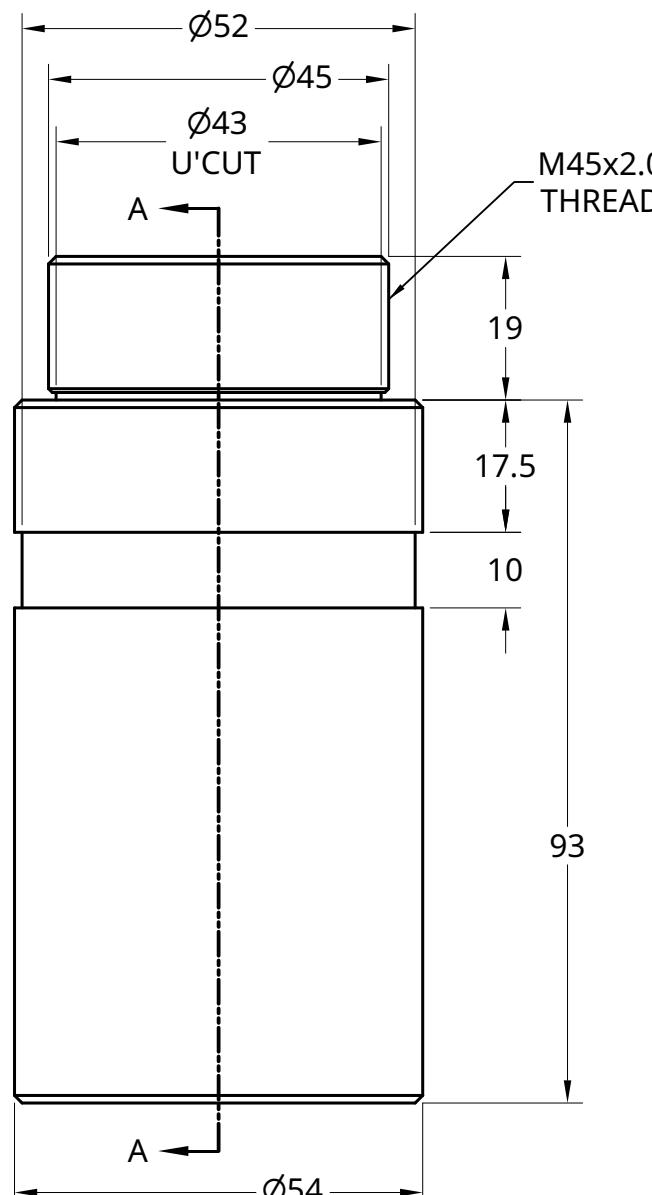
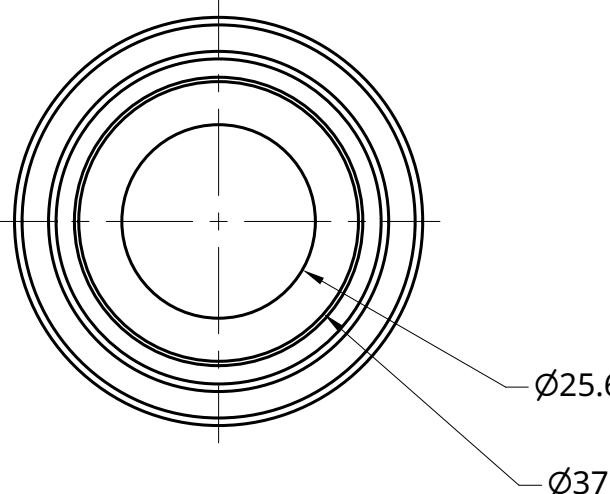
1

4

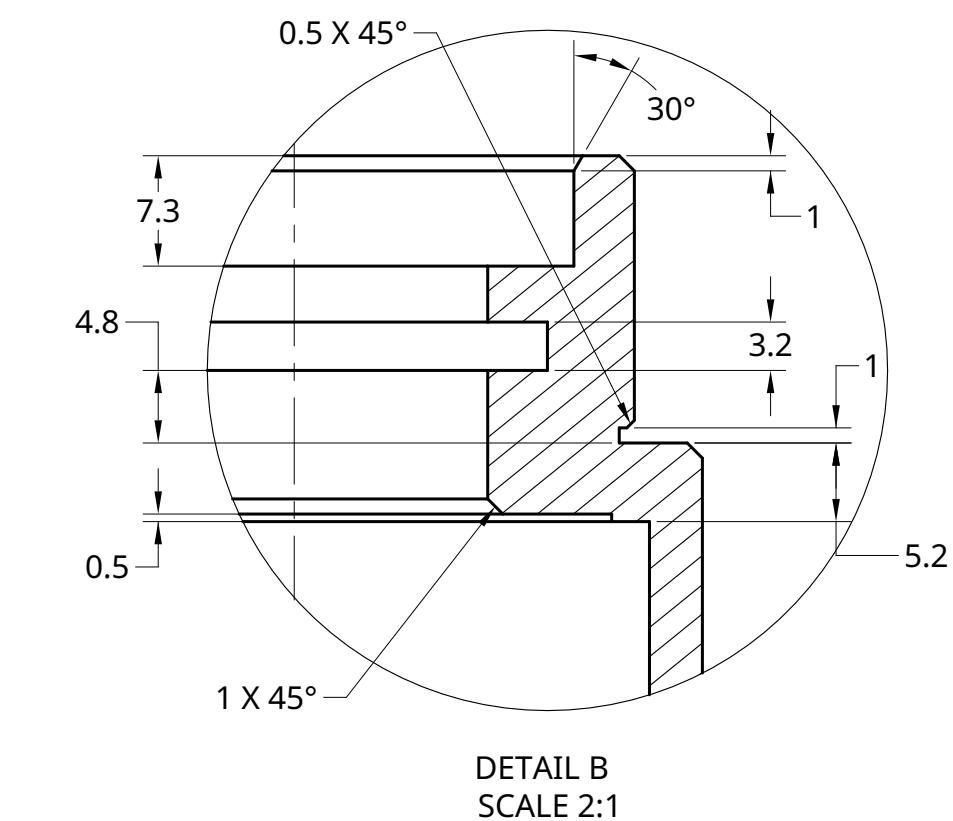
3

2

1



<b>Modeling Notes</b>	
Match dimensional design intent while modeling	D
Orient part model to match the orthographic views	C
Do not create external threads, just create the feature with the correct nominal size	B



Ferris State University			
ROTARY SEPARATOR ASSEMBLY BEARING HOUSING			
SIZE	DWG NO.	M8-2019-001	
B		REV.	
SCALE 1:1	WEIGHT 0.528 kg	SHEET 1 of 1	
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0-. XXX = ±.00-. XXXX = ±.000-	ANGULAR = ± ° FRACTIONAL = ±	DRAWN	NAME BRIAN BRADY DATE 08/16/2019
SURFACE FINISH ✓		CHECKED	
DO NOT SCALE DRAWING		APPROVED	
BREAK ALL SHARP EDGES AND REMOVE BURRS		THIRD ANGLE PROJECTION	MATERIAL STEEL 8620 VOLUME 67271 mm³

4

3

2

1

D

D

0

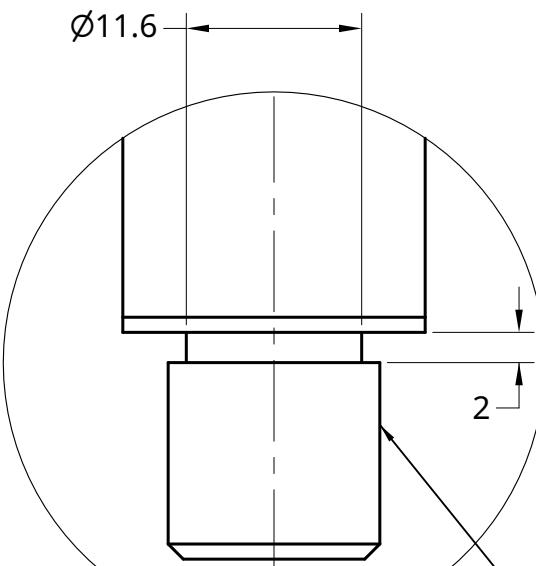
C

B

B

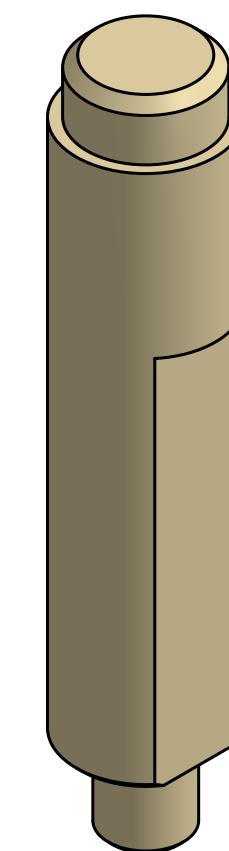
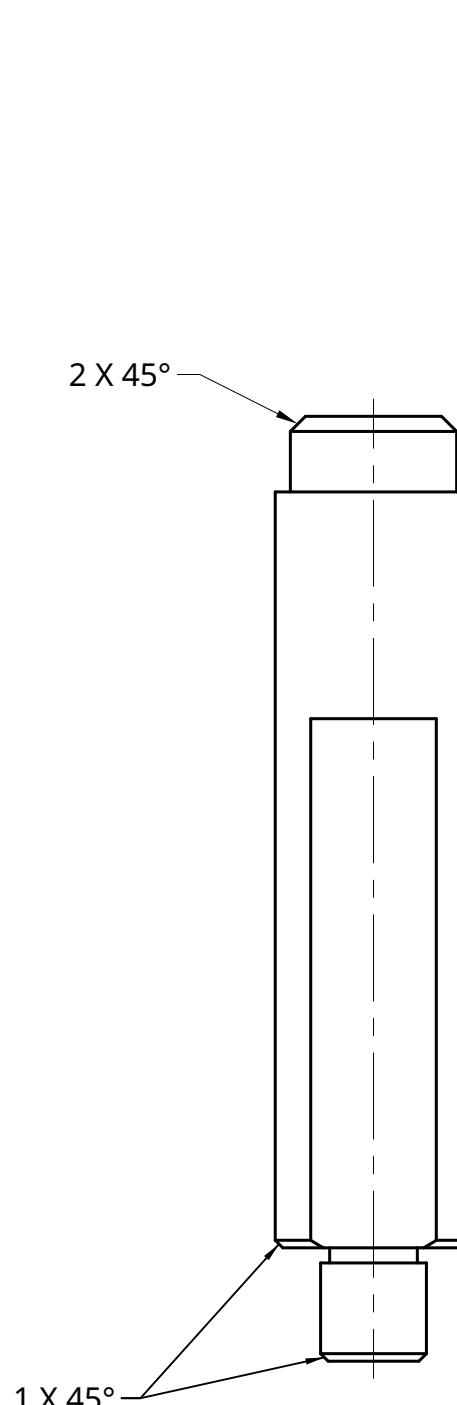
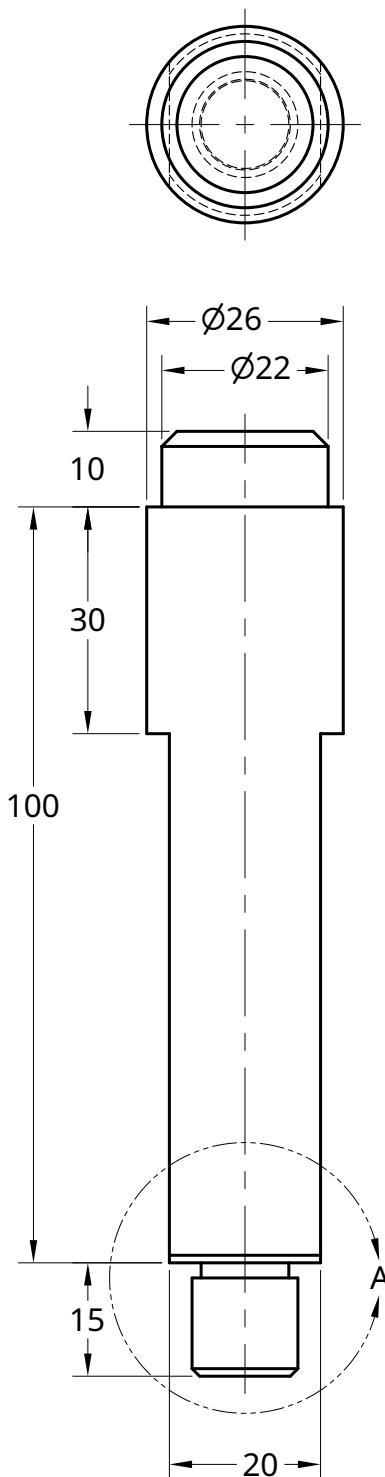
A

A



DETAIL A  
SCALE 2:1

M14x2.0  
THREAD



## Modeling Notes

Match dimensional design intent while modeling

Orient part model to  
match the orthographic  
views

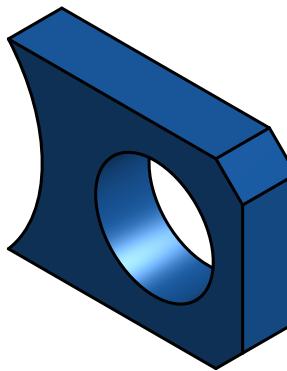
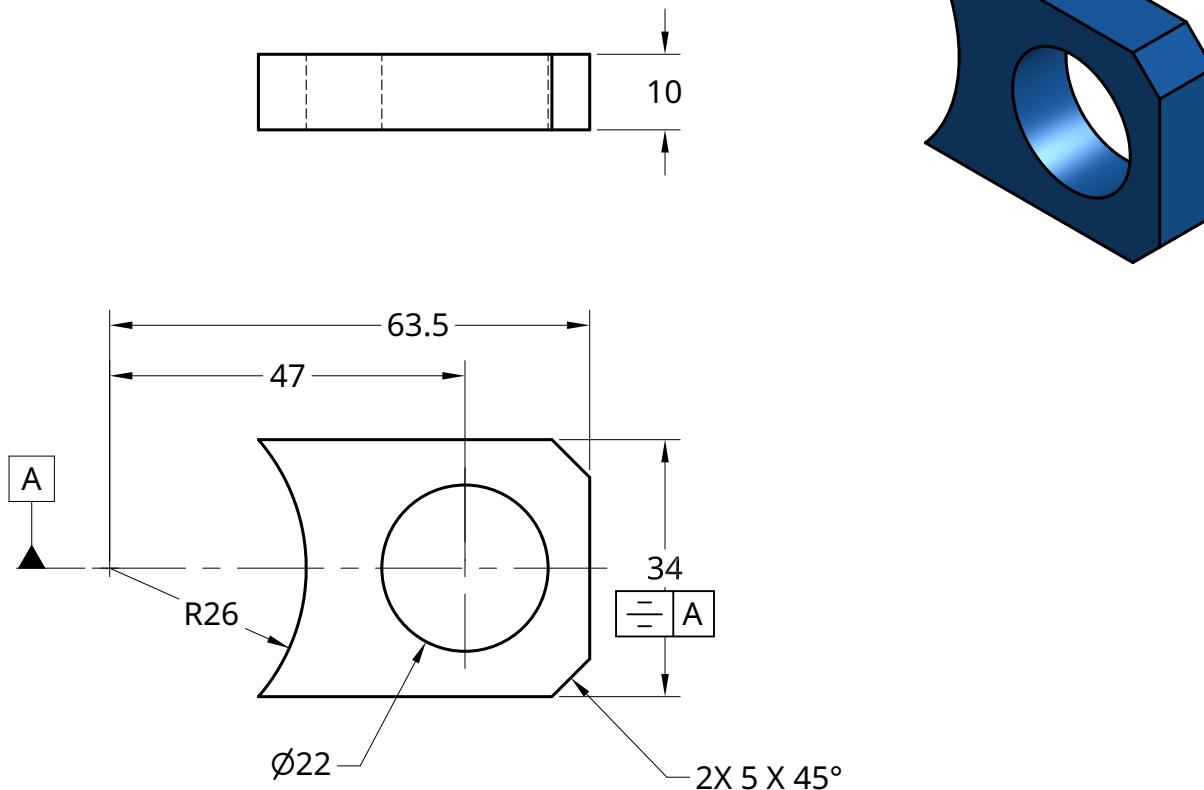
Do not create external threads, just create the feature with the correct nominal diameter

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES  $.XX = \pm 0$ .- $.XXX = \pm 0.0$ - $.XXXX = \pm 0.00$ -  SURFACE FINISH 		NAME	DATE	<b>Ferris State University</b> <b>TITLE</b> ROTARY SEPARATOR ASSEMBLY <b>MOUNTING SHAFT</b>		
	DRAWN	BRIAN BRADY	08/16/2019			
	CHECKED					
	APPROVED					
DO NOT SCALE DRAWING						
BREAK ALL SHARP EDGES AND REMOVE BURRS						
THIRD ANGLE PROJECTION		MATERIAL STEEL 1020	VOLUME 54162mm <sup>3</sup>	<b>SIZE</b>  <b>B</b>	DWG NO.  <b>M8-2019-002</b>	REV.
						
		SCALE 1:1	WEIGHT 0.426 kg	SHEET 1 of 1		

## Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views



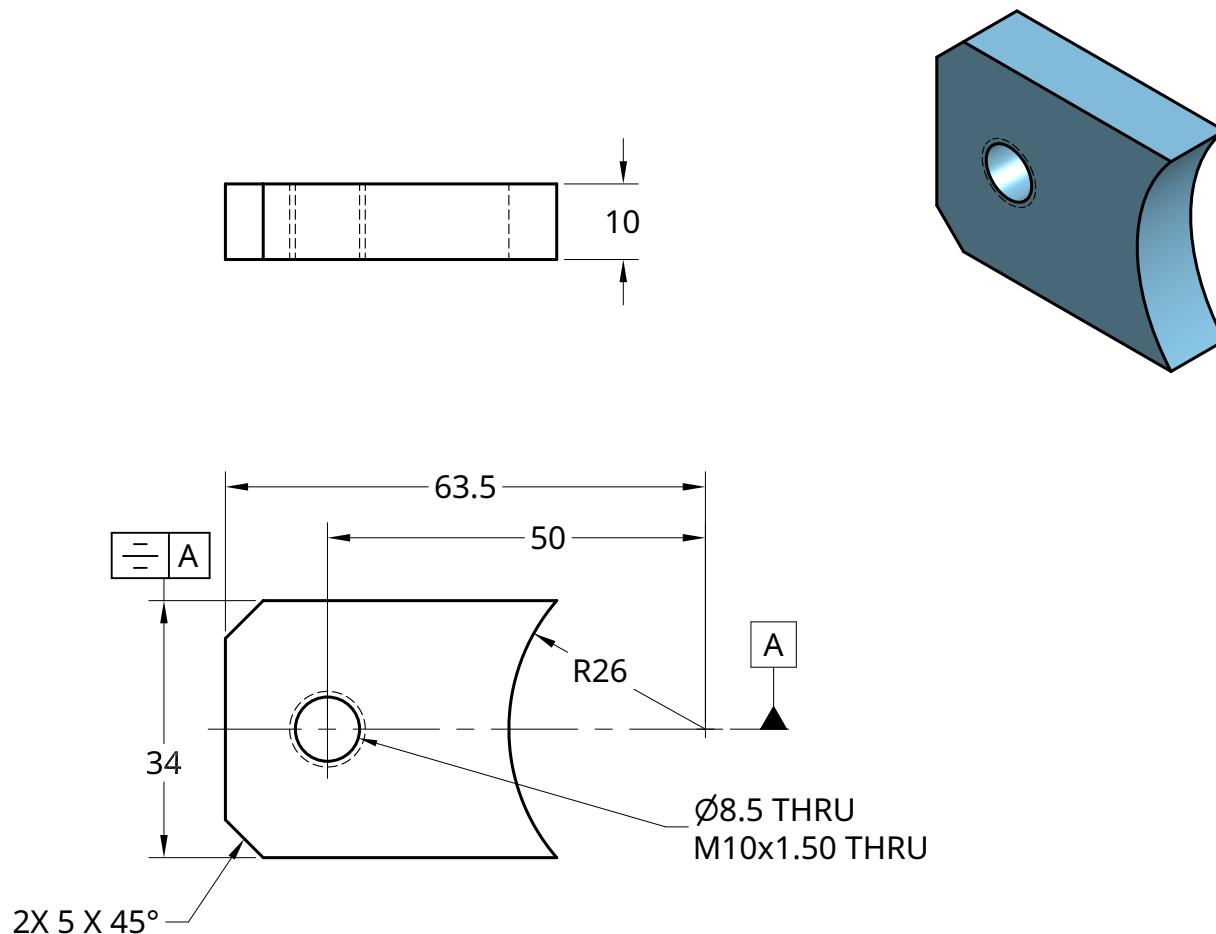
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES  XX = ±.0- XXX = ±.00- XXXX = ±.000-  SURFACE FINISH ✓		DRAWN	NAME	DATE
		CHECKED		08/16/2019
		APPROVED		
DO NOT SCALE DRAWING				
BREAK ALL SHARP EDGES AND REMOVE BURRS				
THIRD ANGLE PROJECTION	MATERIAL	VOLUME	Ferris State University	
	STEEL 1020	9377 mm <sup>3</sup>	ROTARY SEPARATOR ASSEMBLY MOUNTING TAB	
	SCALE 1:1	WEIGHT 0.074 kg	M8-2019-003	
			REV.	
			1 of 1	

## Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views

Use hole tool for threaded hole



B

B

A

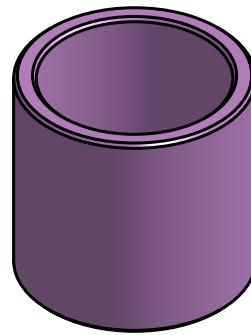
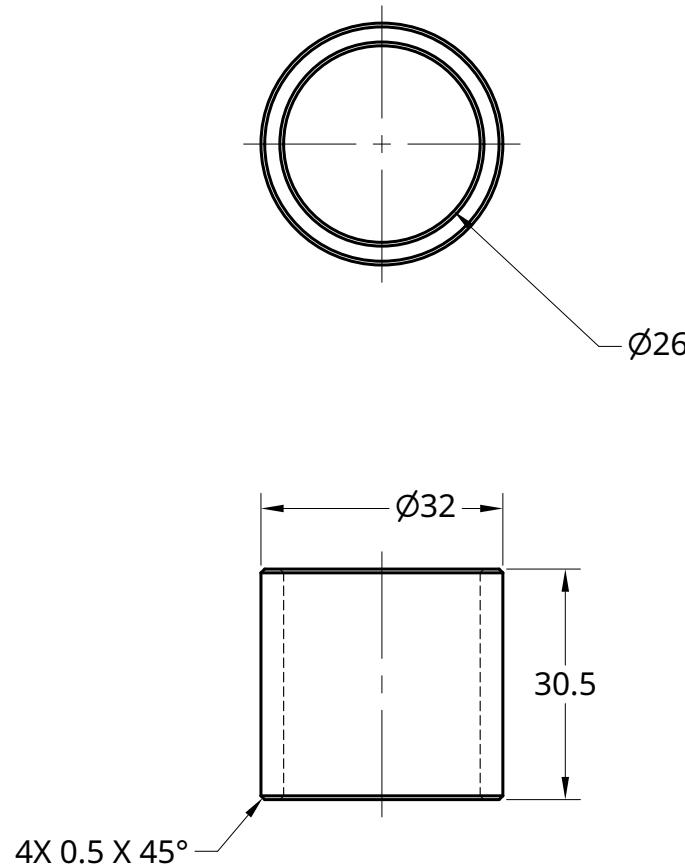
A

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES  XX = ±.0- XXX = ±.00- XXXX = ±.000- SURFACE FINISH ✓		DRAWN	NAME	DATE
		CHECKED		
		APPROVED		
DO NOT SCALE DRAWING				
BREAK ALL SHARP EDGES AND REMOVE BURRS				
THIRD ANGLE PROJECTION		MATERIAL	VOLUME	
		STEEL 1020	12611 mm <sup>3</sup>	
		SCALE	1:1	REV.
		DWG NO.	M8-2019-004	
		WEIGHT	0.099 kg	SHEET
				1 of 1

## Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views



B

B

A

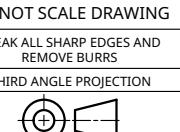
A

UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES  
XX = ±.0-  
XXX = ±.00-  
XXXX = ±.000-  
SURFACE FINISH ✓

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND  
REMOVE BURRS

THIRD ANGLE PROJECTION



DRAWN

CHECKED

APPROVED

NAME

DATE

08/16/2019

TITLE

Ferris State University  
ROTARY SEPARATOR ASSEMBLY  
MOUNTING SPACER

SIZE

A

DWG NO.

M8-2019-005

REV.

SCALE

1:1

WEIGHT

0.065 kg

SHEET

1 of 1

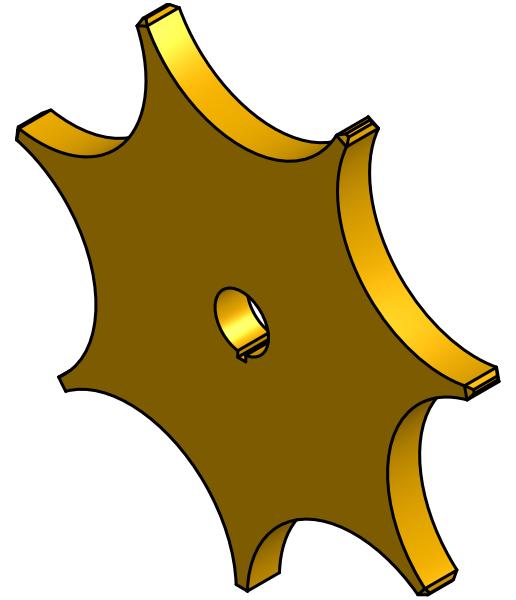
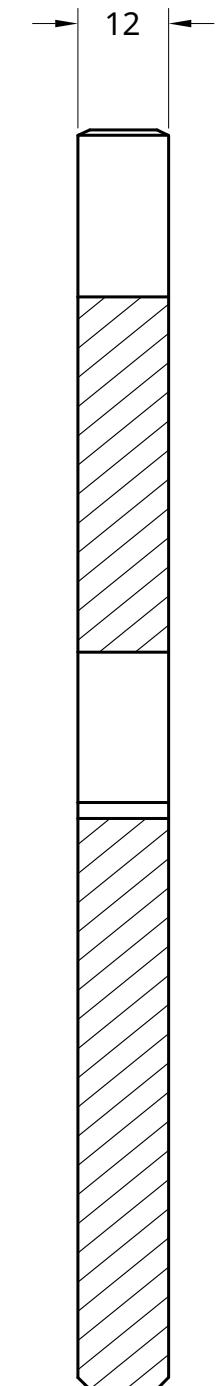
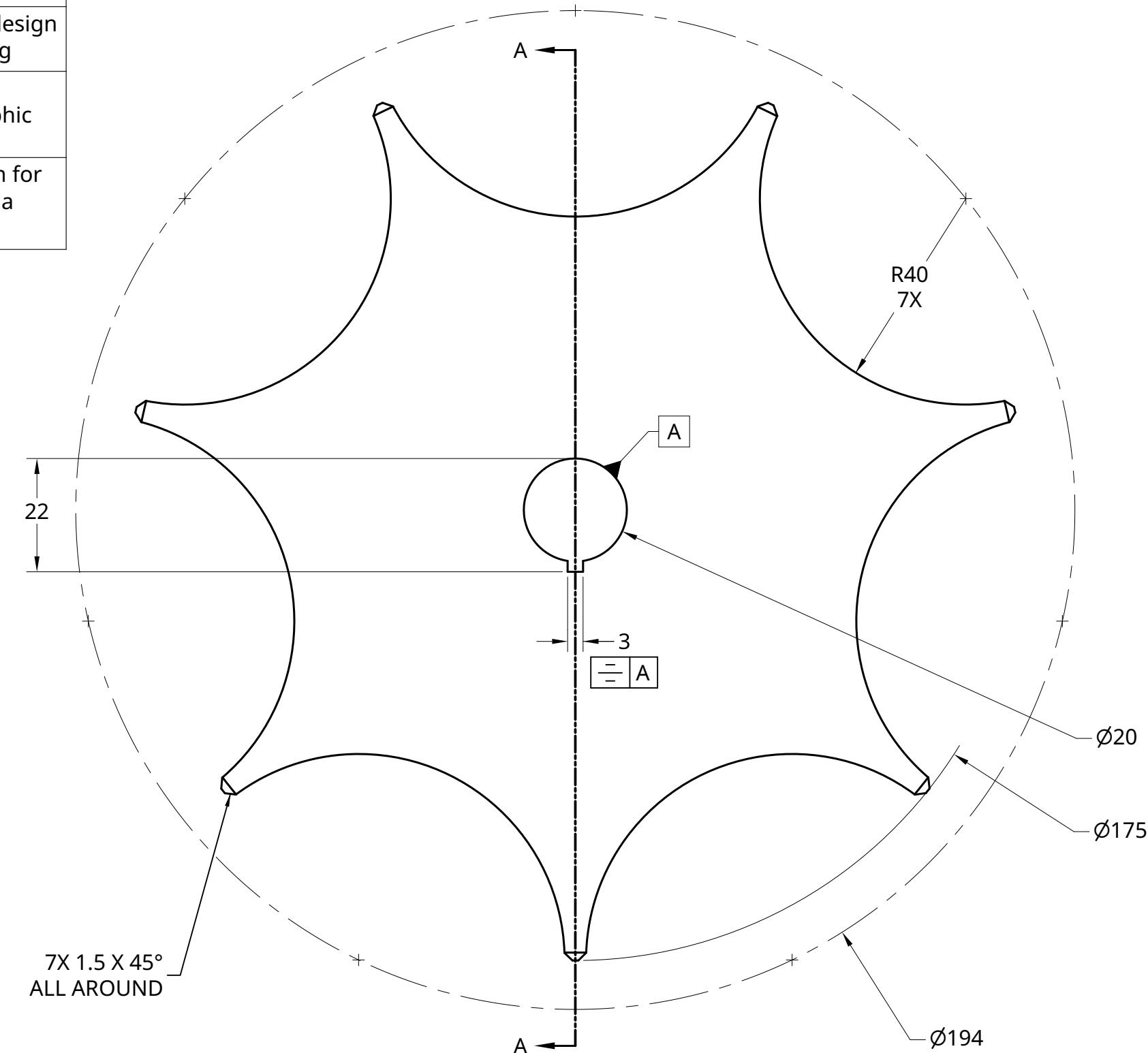
4

3

2

1

<b>Modeling Notes</b>	
Match dimensional design intent while modeling	
Orient part model to match the orthographic views	
Use a feature pattern for the R40 cutouts, not a sketch pattern	



Ferris State University			
ROTARY SEPARATOR ASSEMBLY SEPARATOR WHEEL			
SIZE	DWG NO.	M8-2019-006	
SCALE	1:1	WEIGHT	0.145 kg
SHEET	1 of 1	REV.	

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES  
 .XX = ±.0-.  
 .XXX = ±.00-.  
 .XXXX = ±.000-. ANGULAR = ± °  
 FRACTIONAL = ±

SURFACE FINISH ✓

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND REMOVE BURRS

THIRD ANGLE PROJECTION

MATERIAL HDPE (HIGH-DENSITY POLYETHYLENE)

VOLUME 154133 mm<sup>3</sup>

4

3

2

1

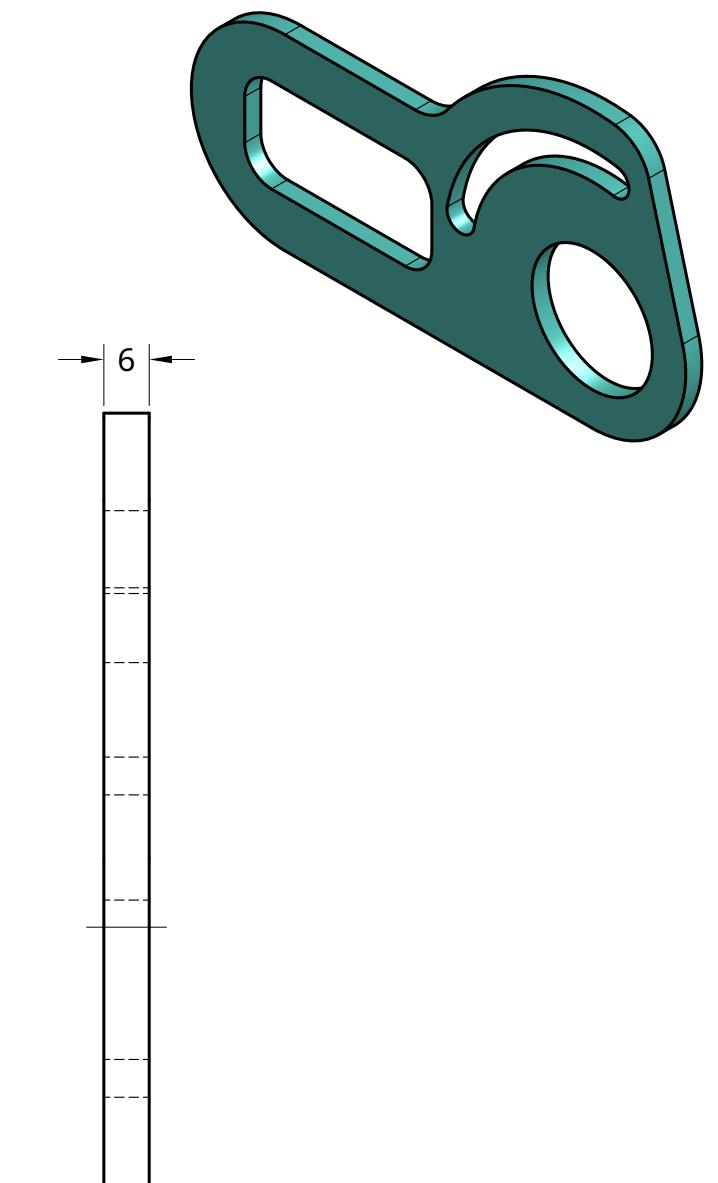
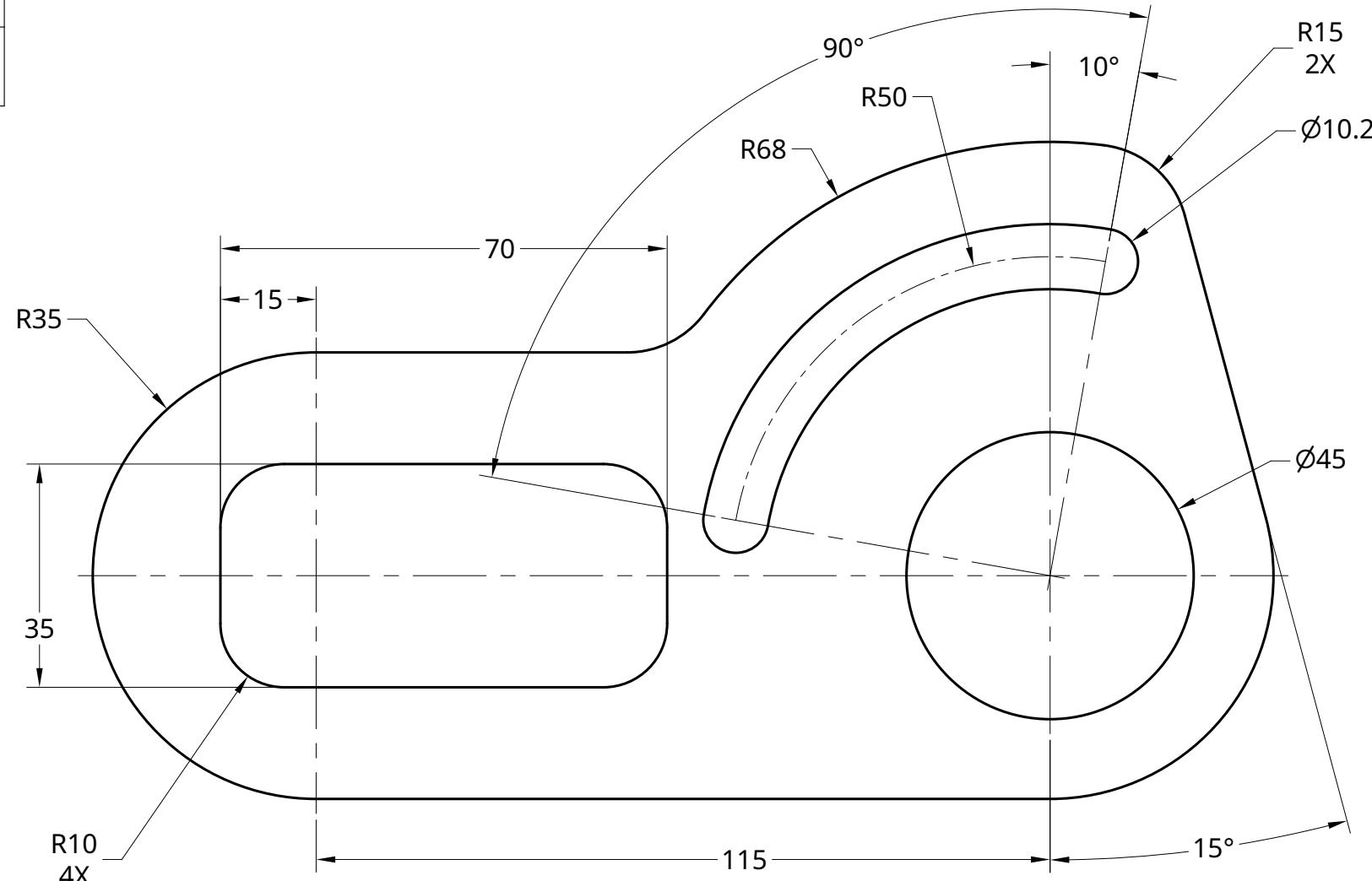
### Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views

Use slot tool for curved slot

All locations that look tangent are tangent



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0-. .XXX = ±.00-. .XXXX = ±.000-		NAME	DATE
SURFACE FINISH	BRIAN BRADY	08/16/2019	
DO NOT SCALE DRAWING			
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL	VOLUME	
	STEEL 1020	55676 mm <sup>3</sup>	
	SCALE	WEIGHT	
	1:1	0.438 kg	
	DWG NO.	REV.	
	M8-2019-007		
	SHEET		
	1 of 1		

Ferris State University

ROTARY SEPARATOR ASSEMBLY  
ADJUSTER PLATE

4

3

2

1

4

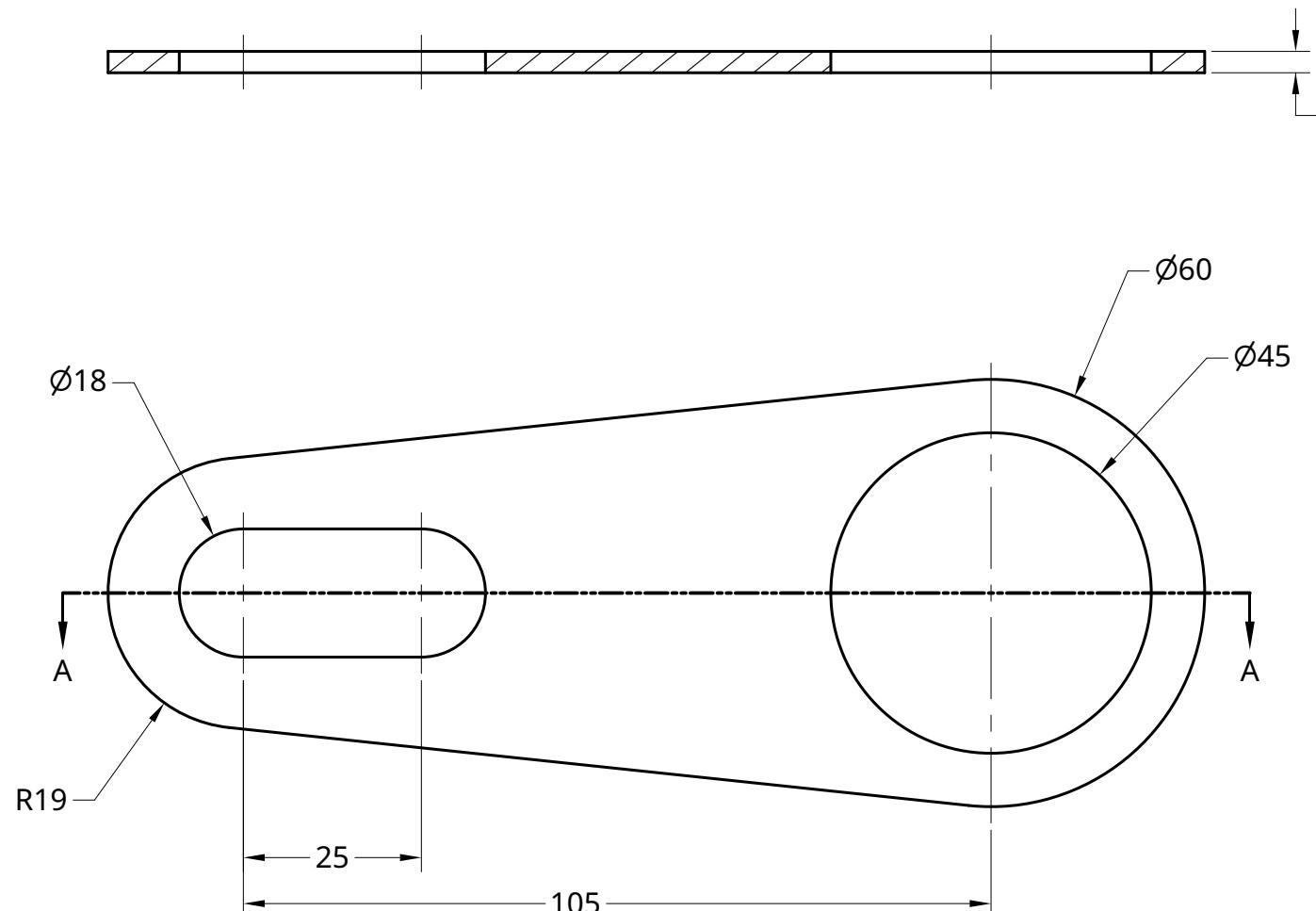
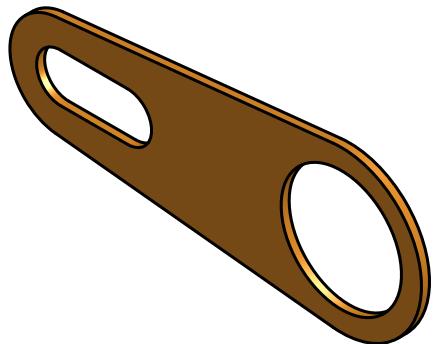
3

2

1

### Modeling Notes

- Match dimensional design intent while modeling
- Orient part model to match the orthographic views
- Use the slot tool for the slot
- All locations that appear tangent are tangent



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES .XX = ±.0-. .XXX = ±.00-. .XXXX = ±.000-		NAME BRIAN BRADY	DATE 08/16/2019
SURFACE FINISH ✓		ANGULAR = ± °	FRACTIONAL = ±
DO NOT SCALE DRAWING		TITLE ROTARY SEPARATOR ASSEMBLY SENSOR PLATE	
BREAK ALL SHARP EDGES AND REMOVE BURRS			
THIRD ANGLE PROJECTION	MATERIAL STEEL 1020	VOLUME 14577 mm³	REV.
SCALE 1:1	WEIGHT 0.115 kg	SHEET 1 of 1	

4

3

2

1

2

1

3

A

B

The technical drawing consists of three parts: a top view, a side view, and a cross-sectional view.

- Top View:** Shows a central rectangular area with four rounded corners. The overall width is indicated as 35. The corners have a radius of R10. There are four small '+' symbols at the vertices of the rounded corners. A dimension of 4X is shown below the view.
- Side View:** Shows the part's profile. It has a total height of 35. The top surface has a thickness of 6. The bottom surface has a thickness of 12. The total width is 50. There are two horizontal slots on the top surface, each 12 units wide and 6 units deep, positioned symmetrically around the center.
- Cross-Sectional View:** Shows a vertical cross-section of the part. The total height is 35. The top section has a width of 22 and a thickness of 22. The bottom section has a width of 22 and a thickness of 22. A callout labeled 'A' indicates a feature with a diameter of Ø25 and a radius of R5, repeated 4 times. Another callout labeled 'A' indicates a feature with a diameter of Ø9.75 and a thickness of T5, also repeated 4 times. A dimension of 4X is shown above the top section.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES		NAME	DATE	<h1>Ferris State University</h1> <p>TITLE      ROTARY SEPARATOR ASSEMBLY CYLINDER CLAMP CAP</p>		
XX = ± .0-	ANGULAR = ± °	BRIAN BRADY	08/16/2019			
XXX = ± .00-	FRACTIONAL = ±					
SURFACE FINISH ✓						
DO NOT SCALE DRAWING						
BREAK ALL SHARP EDGES AND REMOVE BURRS						
THIRD ANGLE PROJECTION		MATERIAL	VOLUME	SIZE	DWG NO.	REV.
		STEEL 8620	9171 mm <sup>3</sup>	A	M8-2019-009	
		SCALE	1:1	WEIGHT	0.072 kg	SHEET
						1 of 1

2

1

4

3

2

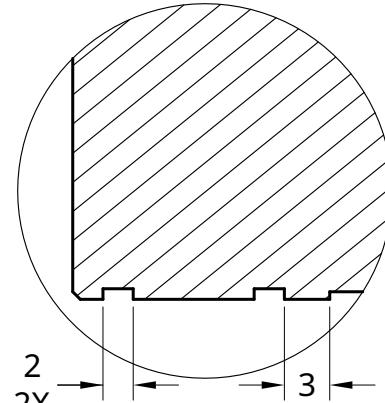
1

**Modeling Notes**

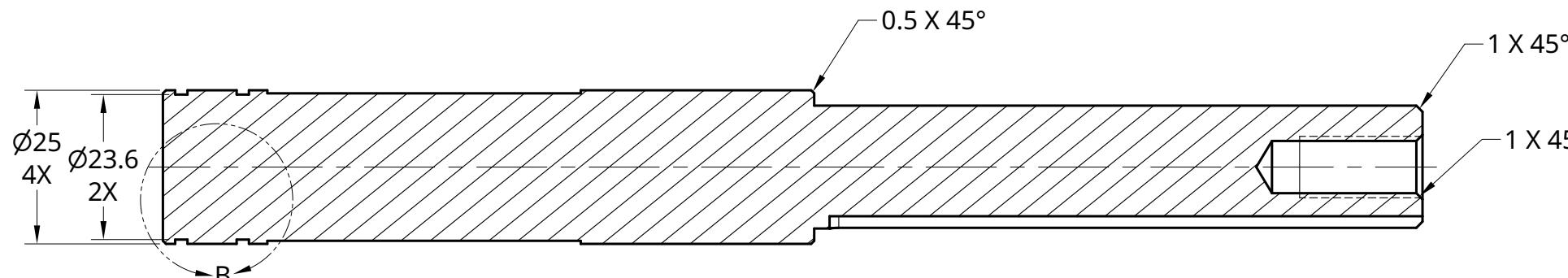
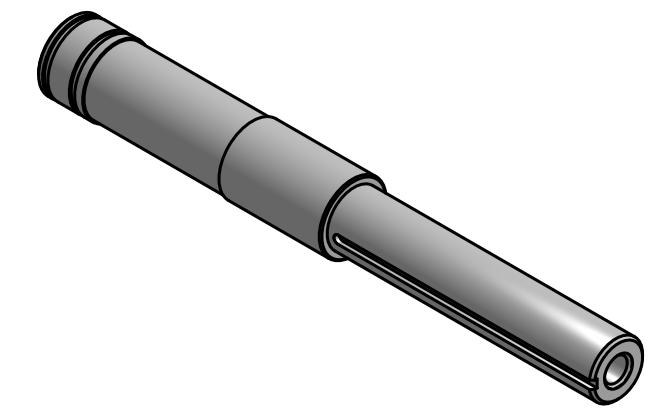
Match dimensional design intent while modeling

Orient part model to match the orthographic views

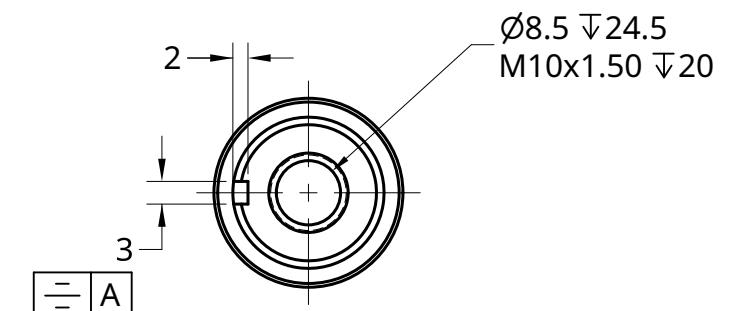
Use hole tool for all holes



DETAIL B  
SCALE 2:1



SECTION A - A



Ferris State University			
ROTARY SEPARATOR ASSEMBLY AXLE SHAFT			
SIZE	DWG NO.	M8-2019-010	
		REV.	
SCALE	1:1	WEIGHT	0.619 kg
SHEET	1 of 1		

UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES  
.XX = ±.0-.  
.XXX = ±.00-.  
.XXXX = ±.000-

ANGULAR = ± °  
FRACTIONAL = ±

SURFACE FINISH ✓

DRAWN BRIAN BRADY 08/16/2019

CHECKED

APPROVED

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND REMOVE BURRS

THIRD ANGLE PROJECTION

MATERIAL STEEL 8620 VOLUME 788890 mm<sup>3</sup>

4

3

2

1

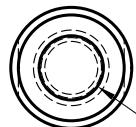
## Modeling Notes

Match dimensional design intent while modeling

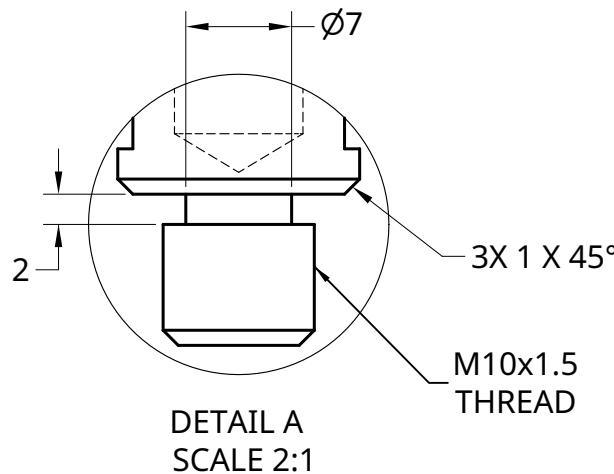
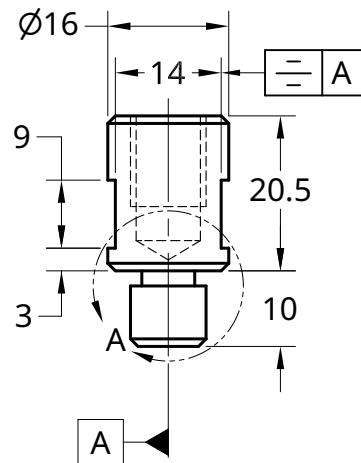
Orient part model to match the orthographic views

Use hole tool for all holes

Do not create external threads, just make the feature the correct nominal size



$\varnothing 8.5 \pm 0.165$   
M10x1.50  $\pm 0.12$



UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES

XX = ±.0-  
XXX = ±.00-  
XXXX = ±.000-  
SURFACE FINISH ✓

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND  
REMOVE BURRS

THIRD ANGLE PROJECTION



DRAWN

CHECKED

APPROVED

NAME

BRIAN BRADY

DATE

08/16/2019

TITLE

ROTARY SEPARATOR ASSEMBLY  
ADJUSTER POST

SIZE

A

DWG NO.

M8-2019-011

REV.

SCALE

1:1

WEIGHT

0.029 kg

SHEET

1 of 1

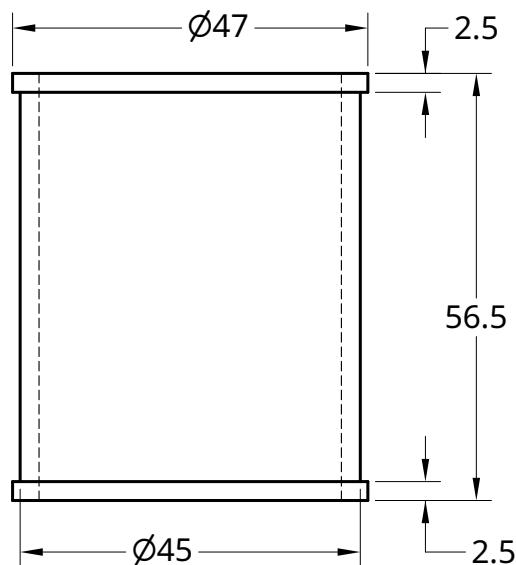
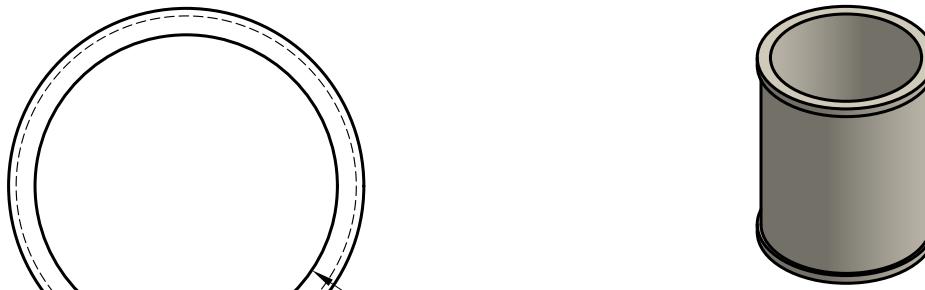
2

1

## Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views



UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES

XX = ±.0-  
XXX = ±.00-  
XXXX = ±.000-

SURFACE FINISH ✓

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND  
REMOVE BURRS

THIRD ANGLE PROJECTION



NAME

BRIAN BRADY

DATE

08/16/2019

DRAWN

CHECKED

APPROVED

TITLE

ROTARY SEPARATOR ASSEMBLY

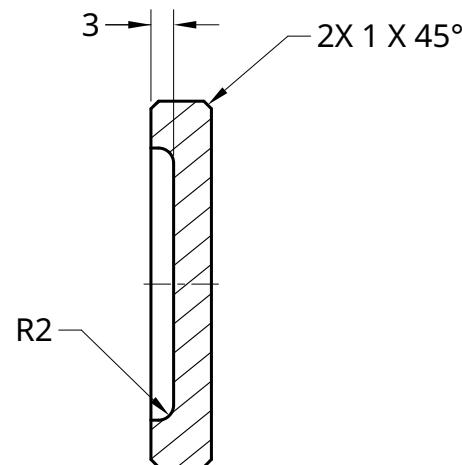
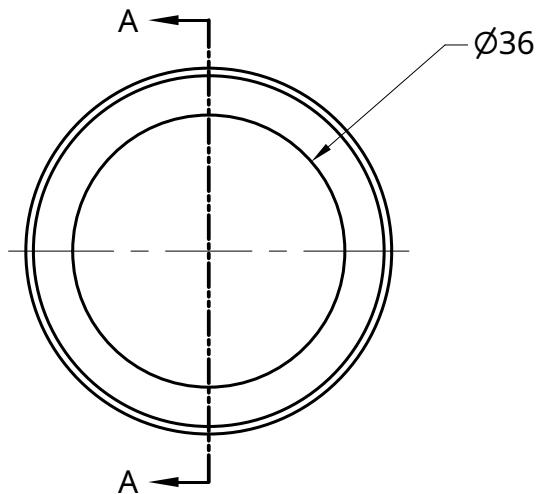
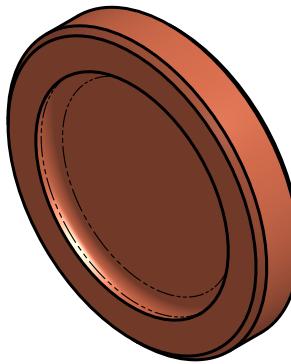
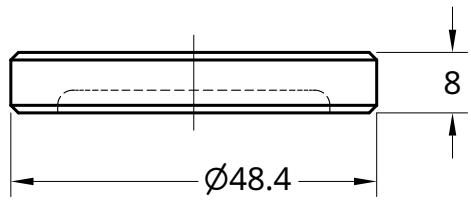
BEARING SPACER

</p

## Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views



SECTION A - A

UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES

XX = ±.0-  
XXX = ±.00-  
XXXX = ±.000-  
SURFACE FINISH ✓

ANGULAR = ± °  
FRACTIONAL = ±

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND  
REMOVE BURRS

THIRD ANGLE PROJECTION



DRAWN

CHECKED

APPROVED

NAME

BRIAN BRADY

DATE

08/16/2019

Ferris State University

TITLE ROTARY SEPARATOR ASSEMBLY  
HOUSING CAP

SIZE

A

DWG NO.

M8-2019-013

REV.

MATERIAL

VOLUME

11610 mm<sup>3</sup>

SCALE

1:1

WEIGHT

0.091 kg

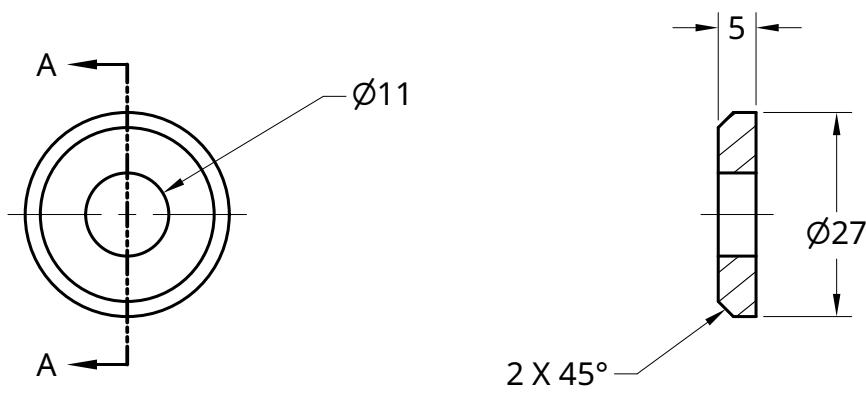
SHEET

1 of 1

## Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views



SECTION A - A

UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES

XX = ±.0-  
XXX = ±.00-  
XXXX = ±.000-  
SURFACE FINISH ✓

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND  
REMOVE BURRS

THIRD ANGLE PROJECTION



DRAWN

BRIAN BRADY

08/16/2019

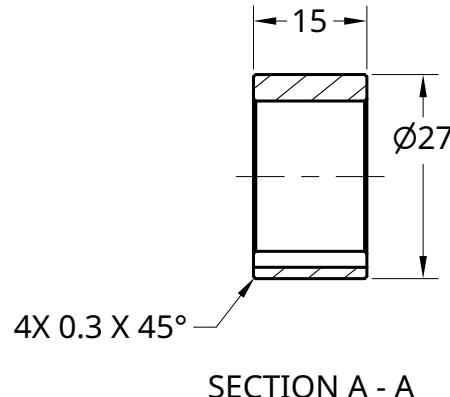
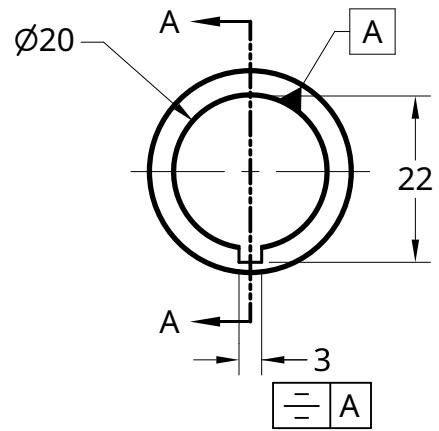
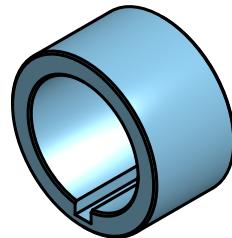
CHECKED

APPROVED

## Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views



SECTION A - A

UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES

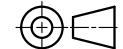
XX = ±.0-  
XXX = ±.00-  
XXXX = ±.000-  
SURFACE FINISH ✓

ANGULAR = ± °  
FRACTIONAL = ±

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND  
REMOVE BURRS

THIRD ANGLE PROJECTION



DRAWN

BRIAN BRADY

08/16/2019

CHECKED

APPROVED

NAME

DATE

Ferris State University

TITLE ROTARY SEPARATOR ASSEMBLY  
SPACER 15MM

SIZE

A

DWG NO.

M8-2019-015

REV.

SCALE

1:1

VOLUME

3771 mm³

WEIGHT

0.030 kg

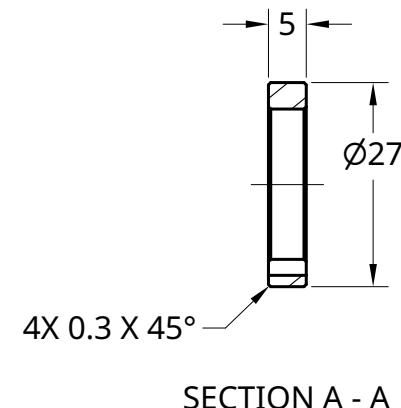
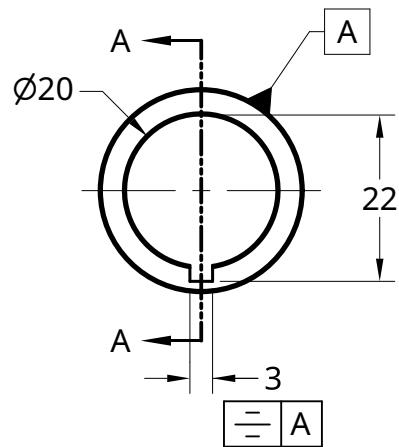
SHEET

1 of 1

## Modeling Notes

Match dimensional design intent while modeling

Orient part model to match the orthographic views



UNLESS OTHERWISE SPECIFIED,  
DIMENSIONS ARE IN INCHES

XX = ±.0-  
XXX = ±.00-  
XXXX = ±.000-

SURFACE FINISH ✓

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND  
REMOVE BURRS

THIRD ANGLE PROJECTION



DRAWN

BRIAN BRADY

08/16/2019

CHECKED

APPROVED

2

1



## Modeling Notes

Match dimensional design intent while modeling

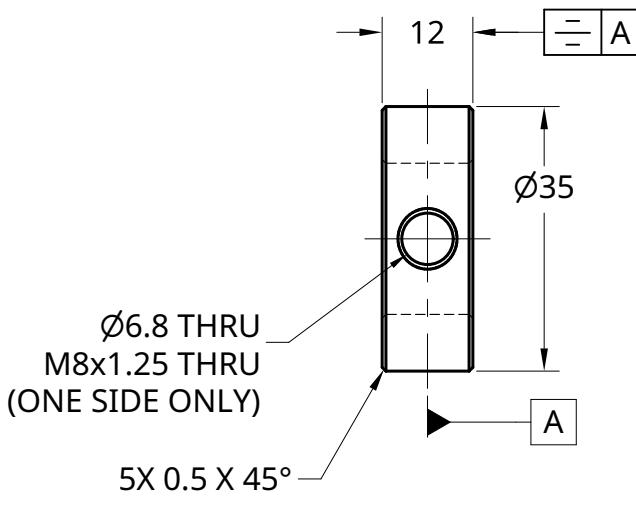
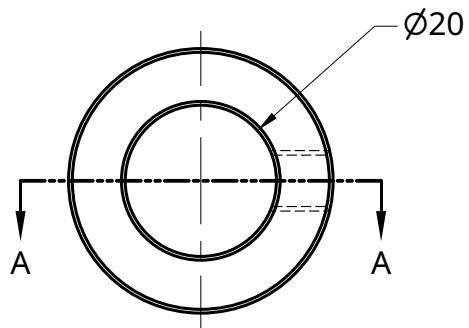
Orient part model to  
match the orthographic  
views

Use the hole tool for the threaded hole

B

A top-down view of a rectangular frame. The left and right edges feature diagonal hatching, while the central area is plain white.

## SECTION A - A



UNLESS OTHERWISE  
DIMENSIONS ARE IN

.XX = ±.0-  
.XXX = ±.00-  
XXXX = ±.000-

SURFACE FINISH ✓

DO NOT SCALE DRAWINGS  
BREAK ALL SHARP EDGES



\_\_\_\_\_

DRAWN BRIAN BRADY 08/16/

L = ± CHECKED

ANSWER

APPROVED

ING

AND

Ferris State University

**TITLE ROTARY SEPARATOR ASSEMBLY  
COLLAR**

M8-2019-017

8

HT 0.059 kg

1 of 1

2

1