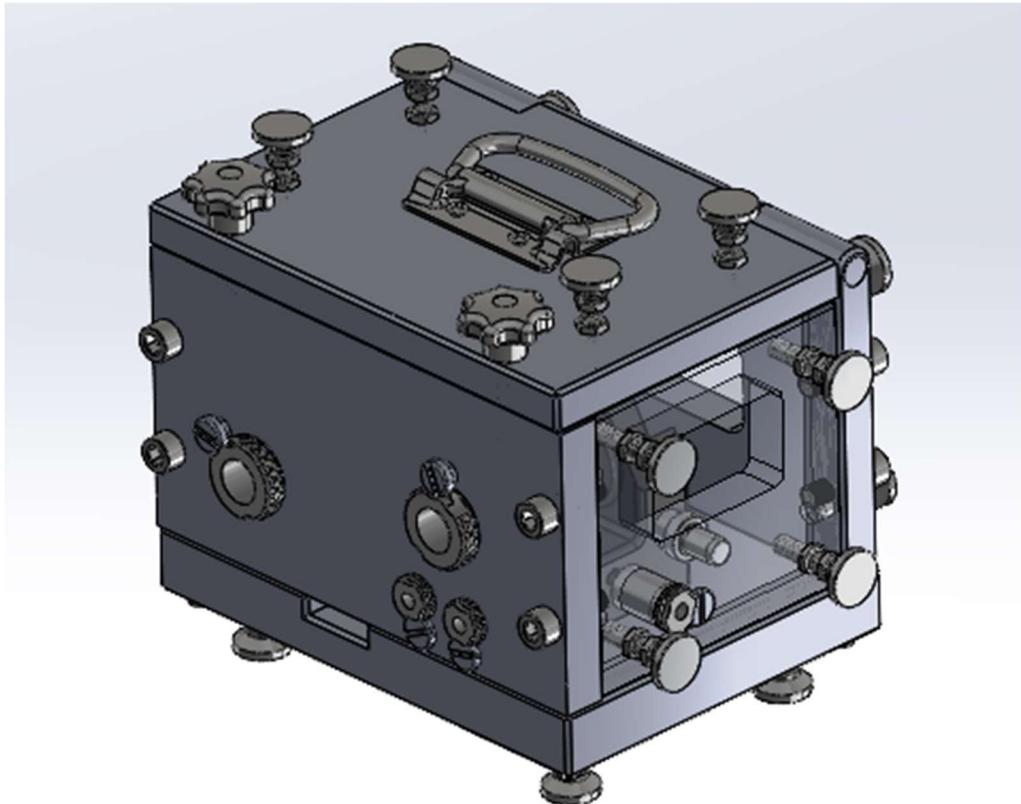


Roller Rest Bracket

Quote Package

Presented By: KM Manufacturing

Partners: Mit and Kayode



Presented for: Michael Waldeck (Conestoga College)

Date: 29-07-2023



About Us:

KM Manufacturing was founded in 2001. Established as a pillar of industry, our company has consistently demonstrated a commitment to excellence in manufacturing, epitomizing the very essence of quality and precision. With a strong foundation rooted in 17 years in operation, we have garnered vast experience and evolved significantly over the years to become a leading force in the field of manufacturing.

At KM Manufacturing, we specialize in the design and manufacture of high-quality jigs, leveraging state-of-the-art technology to deliver products that seamlessly integrate with the needs of our diverse clientele. Our expertise spans across various sectors, serving industries such as aerospace, automotive, electronics, and more. This versatility has not only enriched our competence but has also enabled us to comprehend and adapt to unique customer needs swiftly.

Our team is composed of skilled craftsmen, engineers, and designers, each dedicated to implementing innovative strategies to ensure our products meet the highest industry standards. We have always believed that our strength lies in our people and their ability to create, improve, and perfect.

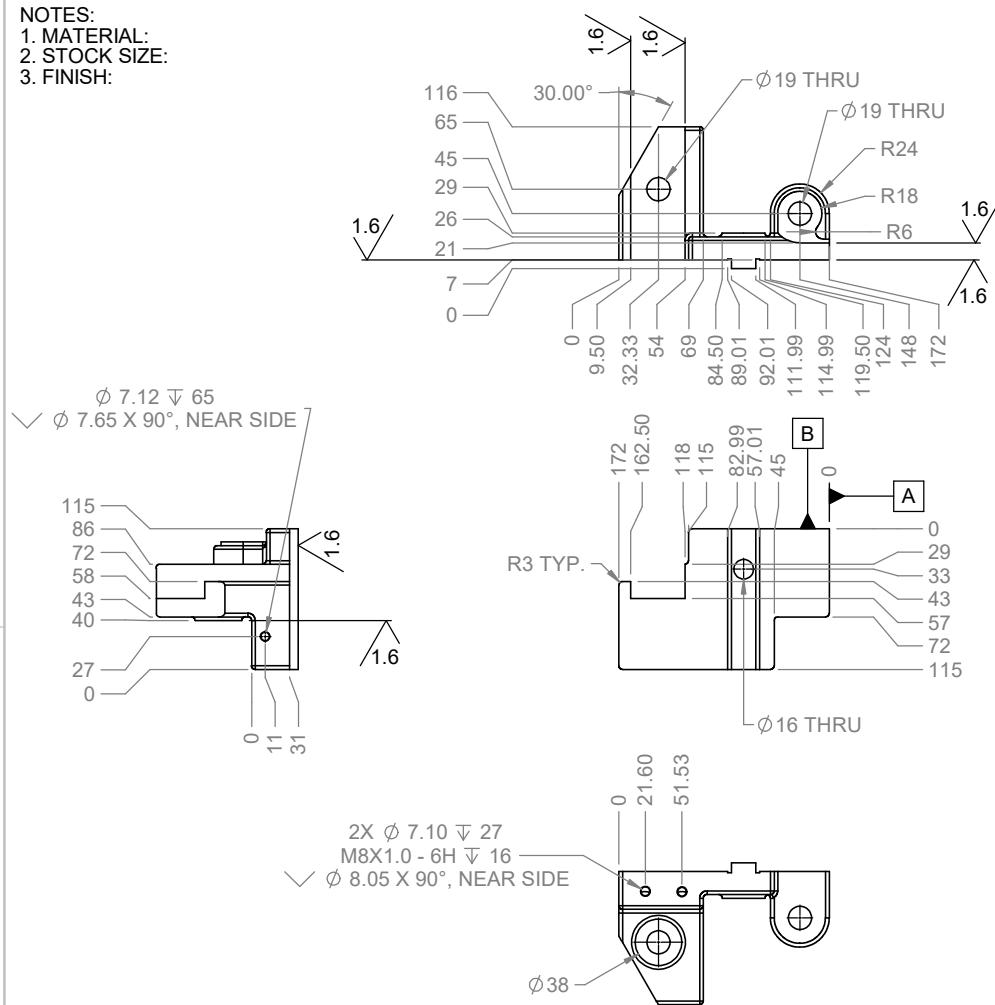
Our Location:

KM Manufacturing, 850 Fountain St S, Cambridge, ON N3H 0A8

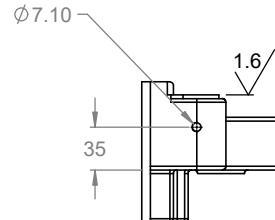
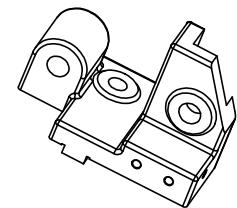
Part Drawings

Here are the detailed part drawings of Roller Rest Bracket which includes each and every part with their sub assemblies and Final Assembly.

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:



| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| | |
|---|--|
| UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994 DIMENSIONS ARE IN MILLIMETERS TOLERANCES APPLY AS SHOWN BELOW | |
| 0 PL DEC ± 0.5 1 PL DEC ± 0.25 2 PL DEC ± 0.13 3 PL DEC ± 0.05 ANGLES $\pm 1^\circ$ SURFACE ROUGHNESS 1.6 μm | |
| THIRD ANGLE PROJECTION | |

| | |
|---|---------|
| SolidWorks MAINTAINED DATA THIS DRAWING WAS GENERATED ELECTRONICALLY BY THE DESIGN ACTIVITY | |
| PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College | |
| CUSTOMER | PROJECT |
| DRAWN BY | DATE |
| CHECKED BY | DATE |
| APPROVED | DATE |

C CONESTOGA
Connect Life and Learning

299 Doon Valley Drive, Kitchener, ON, N2G 4M4

TITLE
ROLLER REST BRACKET
REVISION
B **111014 00**
SCALE 1:4 **WEIGHT** g **SHEET 1 OF 1**

| | |
|-------------|---------------------|
| 111014 | ROLLER REST BRACKET |
| PART NUMBER | REV DESCRIPTION |

8

7

6

5

4

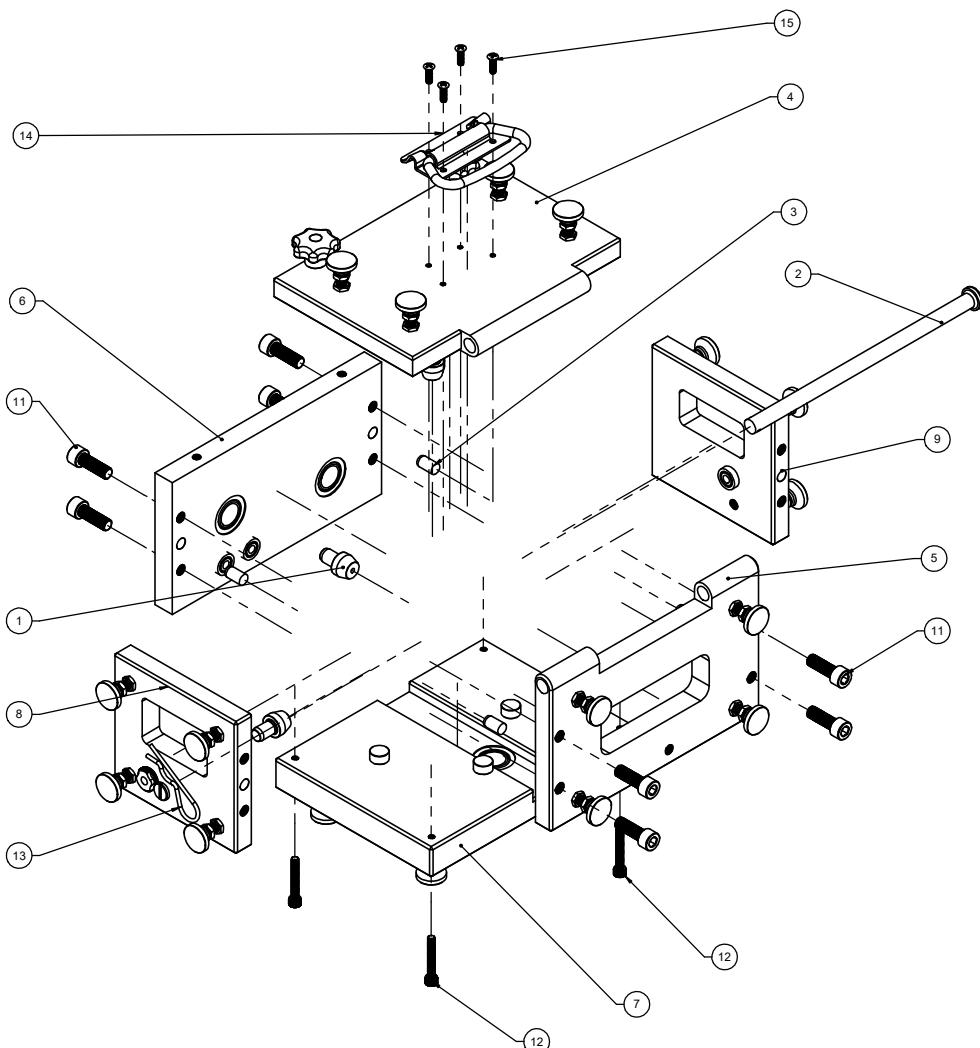
3

2

1

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:

| REVISONS | | | |
|----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVU |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | 2336A116 | Locating Pin | 3 |
| 2 | 111009 | HINGE PIN | 1 |
| 3 | 91595A640 | Dowel Pin | 4 |
| 4 | 111003 | TOP SUB ASSEMBLY | 1 |
| 5 | 111006 | FRONT SUB ASSEMBLY | 1 |
| 6 | 111001 | BACK SUB ASSEMBLY | 1 |
| 7 | 111002 | BASE SUB ASSEMBLY | 1 |
| 8 | 111004 | LEFT SUB ASSEMBLY | 1 |
| 9 | 111005 | RIGHT SUB ASSEMBLY | 1 |
| 10 | 111008 | SCREW CLAMP ASSEMBLY | 2 |
| 11 | 96144A263 | FINE-THREAD ALLOY STEEL SOCKET HEAD SCREW | 8 |
| 12 | 91290A203 | ALLOY STEEL SOCKET HEAD SCREW | 4 |
| 13 | 98350A112 | Cotter Pin | 1 |
| 14 | 1647A111 | Round Folding Pull Handle with Mount Plate | 1 |
| 15 | 91802A244 | Passivated 18-8 Stainless Steel Phillips Oval Head Screws | 4 |

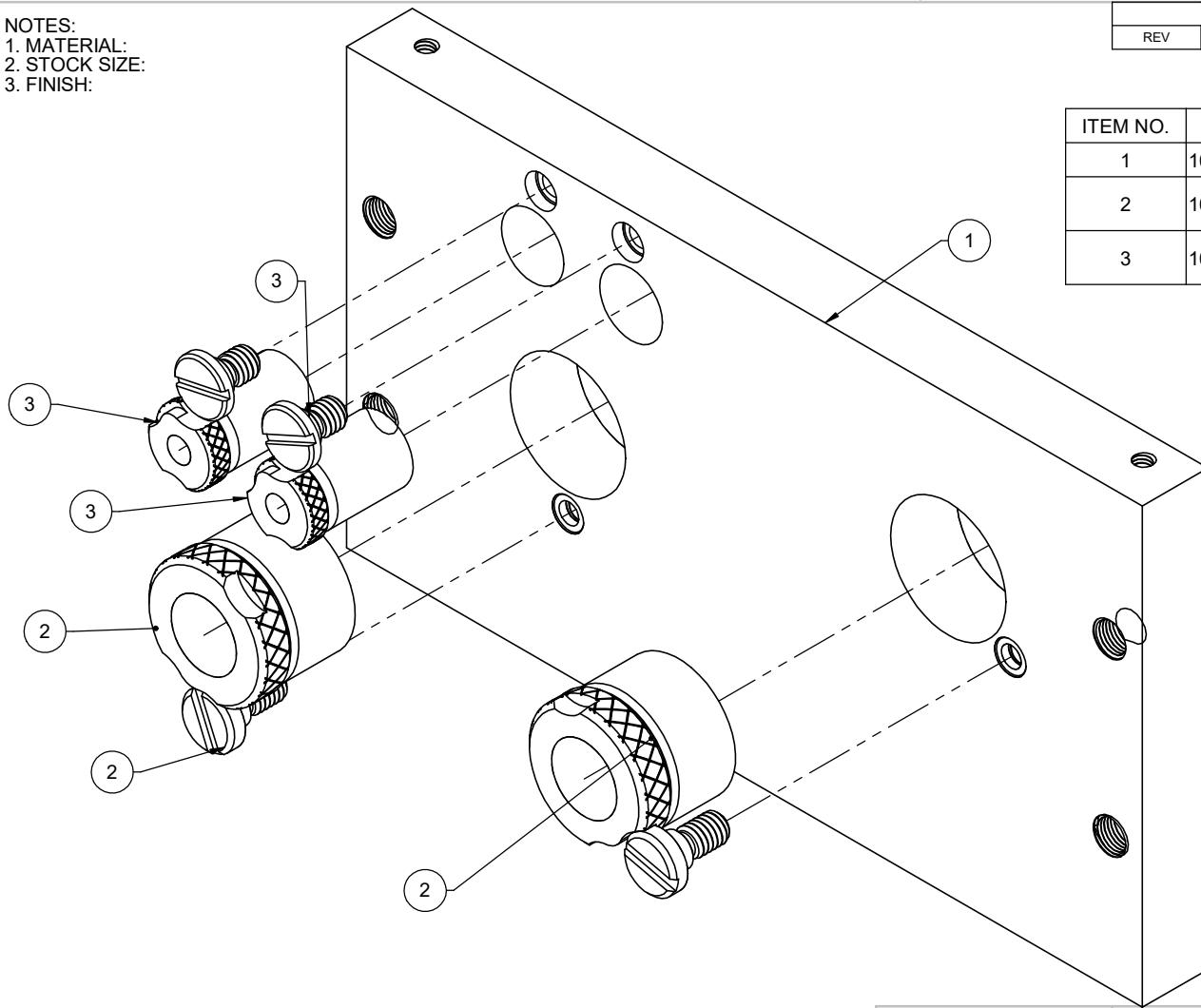
| | |
|-------------|-----------------|
| 111007 | 00 |
| PART NUMBER | REV DESCRIPTION |

| | | | |
|---|--|--|--|
| UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994 DIMENSIONS ARE IN MILLIMETRES TOLERANCES APPLY AS SHOWN BELOW | | SolidWorks MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY IN THE DESIGN ACTIVITY | |
| NO PART OF THIS DOCUMENT MAY BE COPIED, REPRODUCED OR RETRIEVED SYSTEM, OR TRANSMITTED IN WHOLE OR IN PART, WITHOUT THE WRITTEN PERMISSION OF Conestoga College | | | |
| PROPRIETARY PROJECT CUSTOMER | | TITLE JIG ASSEMBLY | |
| THIRD ANGLE PROJECTION | | DRAWN BY  DATE CHECKED BY  APPROVED DATE | |
| D | | DRAWING NO 111007 00 | |
| SCALE 1:2 | | WEIGHT 9 | |
| SHEET 1 OF 1 | | | |

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | 101100 | JIG BACK SIDE | 1 |
| 2 | 101101 | 19MM BUSHING (WITH SLEEVE&LOCK SCREW) | 2 |
| 3 | 101102 | 7 mm BUSHING (WITH SLEEVE & LOCK SCREW) | 2 |



UNLESS OTHERWISE SPECIFIED
 DO NOT SCALE DRAWING
 INTERPRET DIMENSIONS AND TOLERANCES
 PER ASME Y14.5M-1994
 DIMENSIONS ARE IN MILLIMETERS
 TOLERANCES APPLY AS SHOWN BELOW

| | |
|-------------------|-------------------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | $\pm 1^\circ$ |
| SURFACE ROUGHNESS | 1.6 μm |

THIRD ANGLE PROJECTION

SolidWorks MAINTAINED DATA
 CHANGES ARE AUTOMATICALLY UPATED
 ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY
 NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
 STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
 ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
 Conestoga College

CUSTOMER
 PROJECT
 DRAWN BY _____ DATE _____
 CHECKED BY _____ DATE _____
 APPROVED _____ DATE _____

C CONESTOGA
 Connect Life and Learning

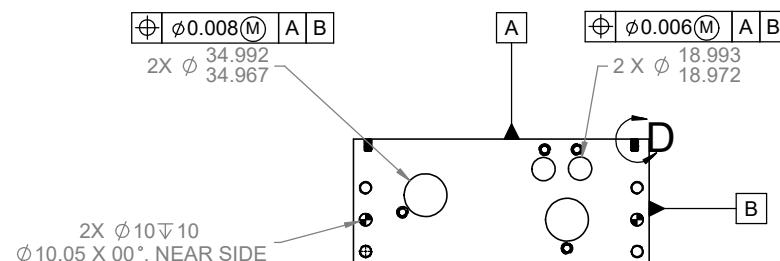
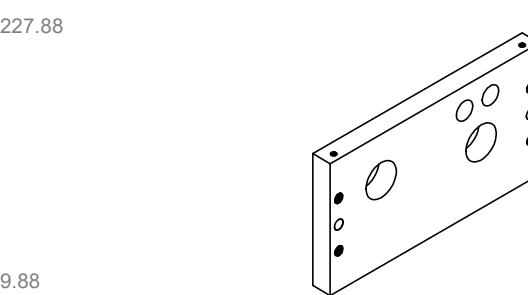
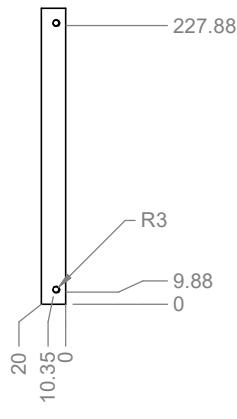
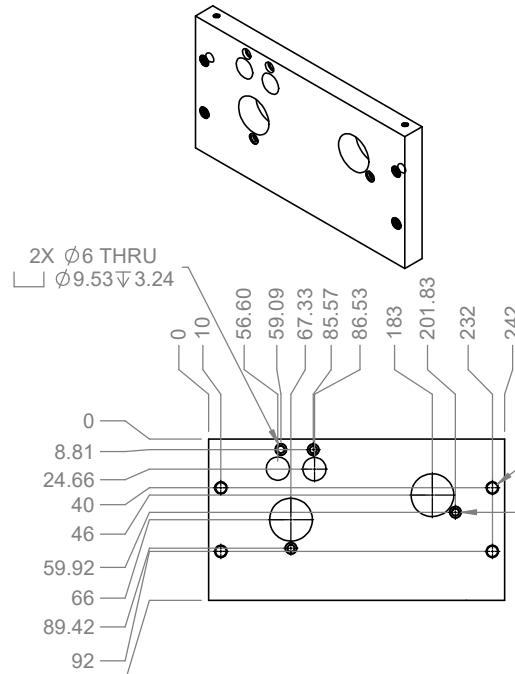
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

BACK SUB ASSEMBLY

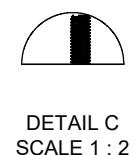
111001 00
 REVISION
 B
 1:2
 WEIGHT g
 SHEET 1 OF 1

| | | |
|-------------|-----|-------------------|
| 111001 | 00 | BACK SUB ASSEMBLY |
| PART NUMBER | REV | DESCRIPTION |

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:



DETAIL D
SCALE 1 : 2



DETAIL C
SCALE 1 : 2

| REVISIONS | |
|-----------|-------------|
| REV | DESCRIPTION |
| | DATE APVD |

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES APPLY AS SHOWN BELOW

| | |
|-------------------|--------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | ± 1° |
| SURFACE ROUGHNESS | 1.6 µm |

THIRD ANGLE PROJECTION

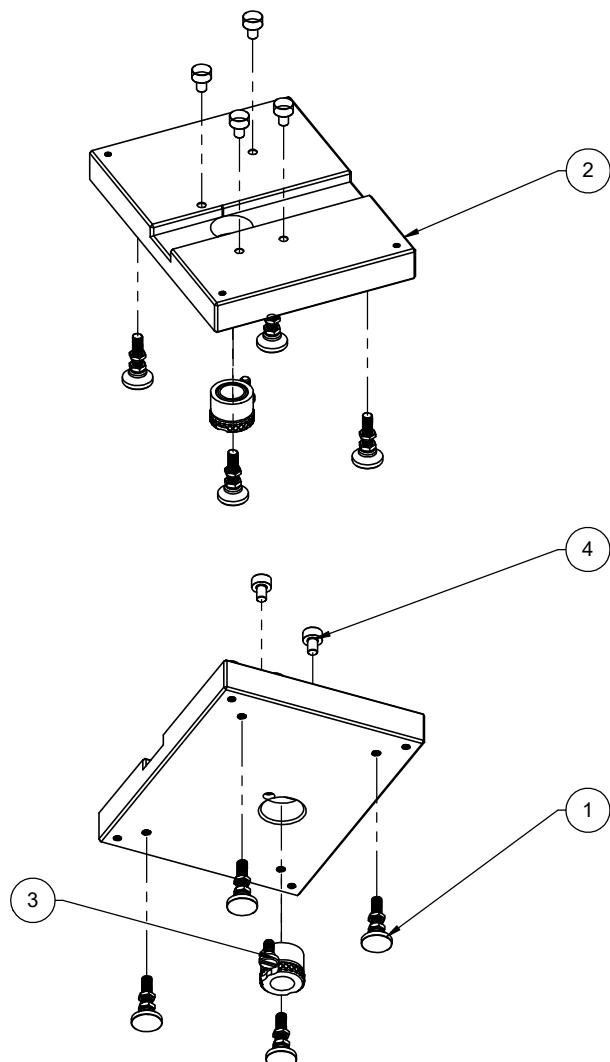
SolidWorks MAINTAINED DATA
CANNOT BE MANUALLY EDITED
ELECTRONICALLY BY THE DESIGN ACTIVITY
PROPRIETARY
NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College

| | |
|------------|---------|
| CUSTOMER | PROJECT |
| DRAWN BY | DATE |
| CHECKED BY | DATE |
| APPROVED | DATE |

C CONESTOGA
Connect Life and Learning
299 Doon Valley Drive, Kitchener, ON, N2G 4M4
JIG BACK
SIZE DRAWING NO
B 1:4 g
SCALE WEIGHT SHEET 1 OF 1
101100 0

| | | |
|-------------|-----|-------------|
| 101100 | 00 | JIG BACK |
| PART NUMBER | REV | DESCRIPTION |

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:



| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | 6111K652 | SWIVEL LEVELLING MOUNT | 4 |
| 2 | 101103 | JIG BASE | 1 |
| 3 | 101104 | 16 MM BUSHING (WITH SLEEVE AND LOCK SCREW) | 1 |
| 4 | 3097N13 | PRESS-FIT LOCATING AND SUPPORT BUTTON | 4 |

| | | |
|-------------|-----|-------------------|
| 111002 | 00 | BASE SUB ASSEMBLY |
| PART NUMBER | REV | DESCRIPTION |

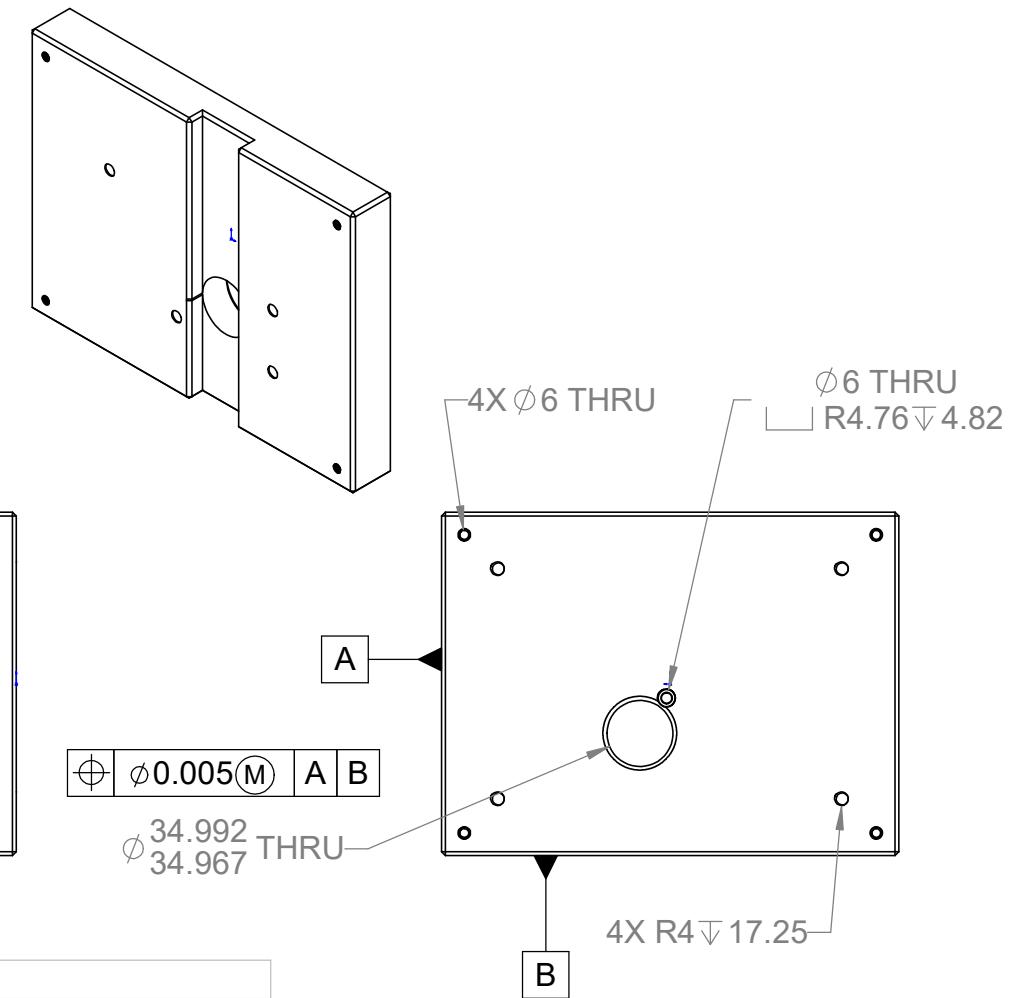
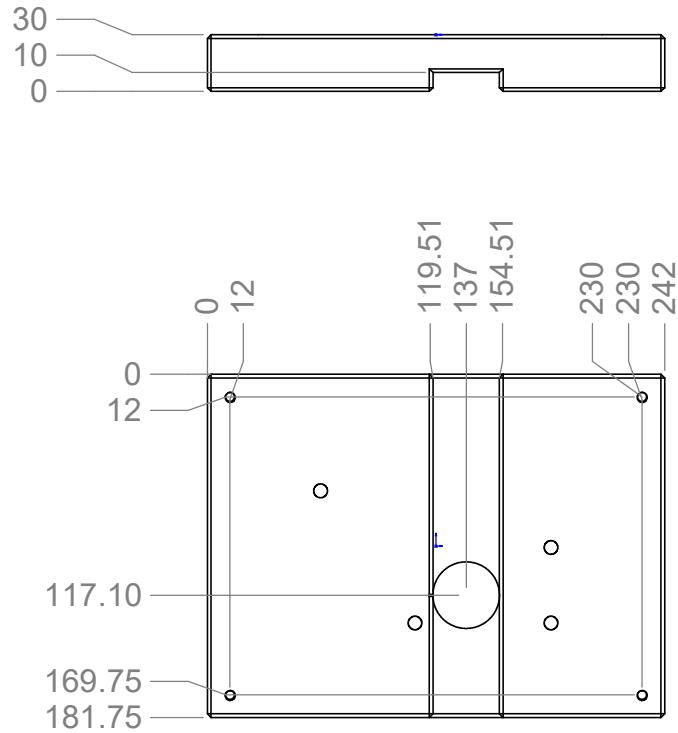
| | | | |
|---|--|--|--|
| UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994 DIMENSIONS ARE IN MILLIMETERS TOLERANCES APPLY AS SHOWN BELOW | | SolidWorks MAINTAINED DATA CANNOT BE MANUALLY EDITED ELECTRONICALLY BY THE DESIGN ACTIVITY | |
| 0 PL DEC | | ± 0.5 | |
| 1 PL DEC | | ± 0.25 | |
| 2 PL DEC | | ± 0.13 | |
| 3 PL DEC | | ± 0.05 | |
| ANGLES | | $\pm 1^\circ$ | |
| SURFACE ROUGHNESS | | 1.6 μm | |
| THIRD ANGLE PROJECTION | | | |

| | | |
|--|-----|---|
| CONESTOGA Connect Life and Learning | | 299 Doon Valley Drive, Kitchener, ON, N2G 4M4 |
| BASE SUB ASSEMBLY | | |
| 111002 - | | |
| SHEET 1 OF 1 | 1:4 | g |

NOTES:

1. MATERIAL:
2. STOCK SIZE:
3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| | | |
|-------------|----------|-------------|
| 101103 | JIG BASE | |
| PART NUMBER | REV | DESCRIPTION |

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994
DIMENSIONS ARE IN MILLIMETRES
TOLERANCES APPLY AS SHOWN BELOW

| | |
|-------------------|-------------------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | $\pm 1^\circ$ |
| SURFACE ROUGHNESS | $1.6 \mu\text{m}$ |

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY
NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College.

CUSTOMER _____
PROJECT _____

DRAWN BY _____ DATE _____
CHECKED BY _____ DATE _____
APPROVED _____ DATE _____

C CONESTOGA
Connect Life and Learning

299 Doon Valley Drive, Kitchener, ON, N2G 4M4

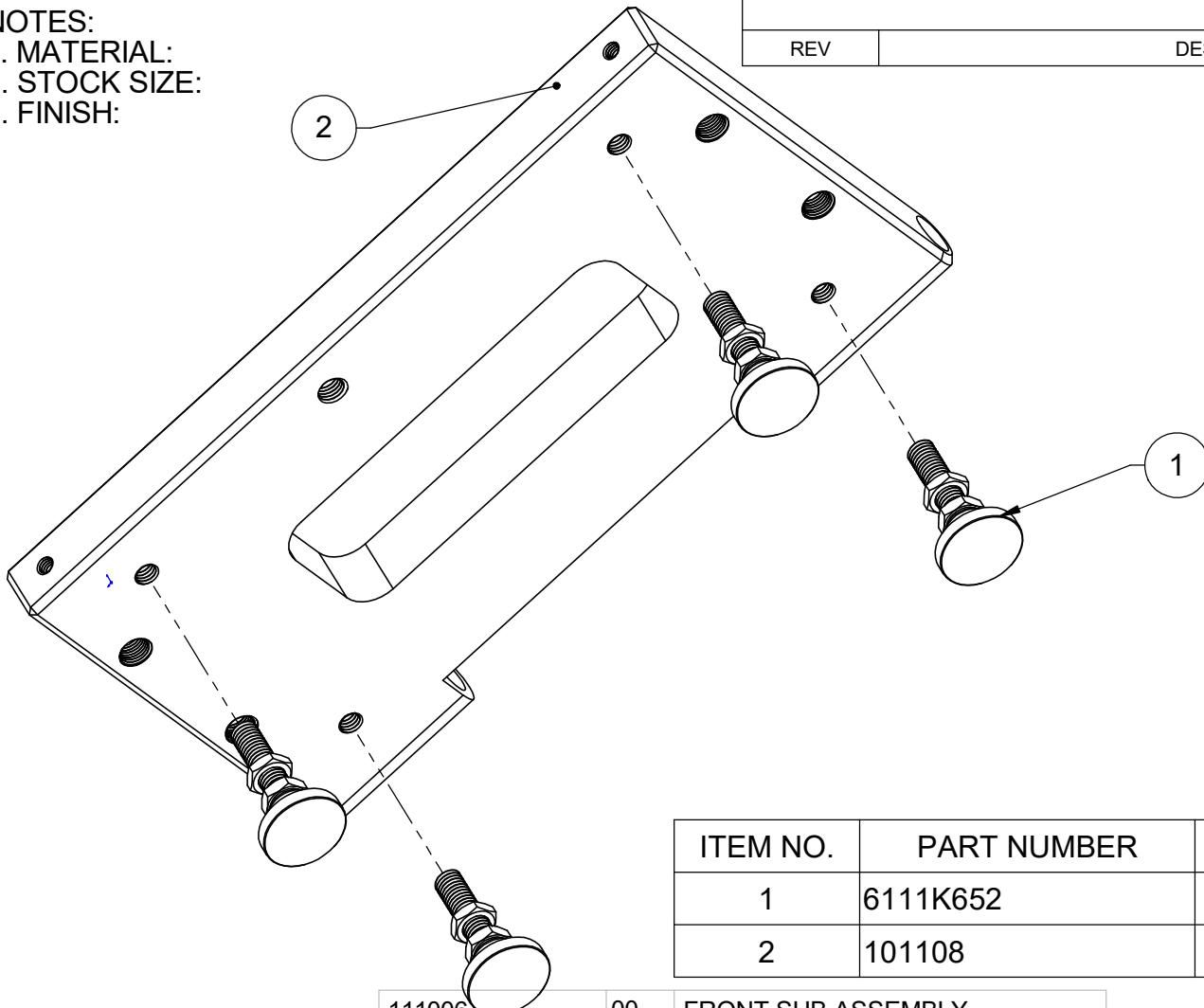
JIG BASE

| SIZE | DRAWING NO | REVISION |
|----------|--------------|----------|
| A | 1:2 | |
| SCALE | WEIGHT | |
| g | SHEET 1 OF 1 | |

101103 00

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|------------------------|------|
| 1 | 6111K652 | SWIVEL LEVELLING MOUNT | 4 |
| 2 | 101108 | JIG FRONT | 1 |

| | | |
|-------------|-----|--------------------|
| 111006 | 00 | FRONT SUB ASSEMBLY |
| PART NUMBER | REV | DESCRIPTION |

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING

INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994

DIMENSIONS ARE IN MILLIMETRES
TOLERANCES APPLY AS SHOWN BELOW

| | |
|-------------------|-------------------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | $\pm 1^\circ$ |
| SURFACE ROUGHNESS | $1.6 \mu\text{m}$ |

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY

NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College.

CUSTOMER

PROJECT



299 Doon Valley Drive, Kitchener, ON, N2G 4M4

TITLE

FRONT SUB ASSEMBLY

SIZE

A

DRAWING NO

111006 00

REVISION

1:2

SCALE

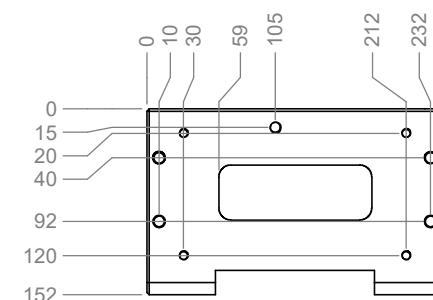
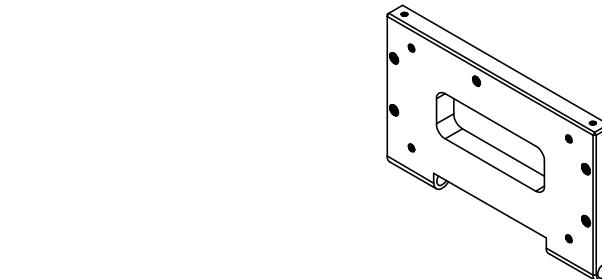
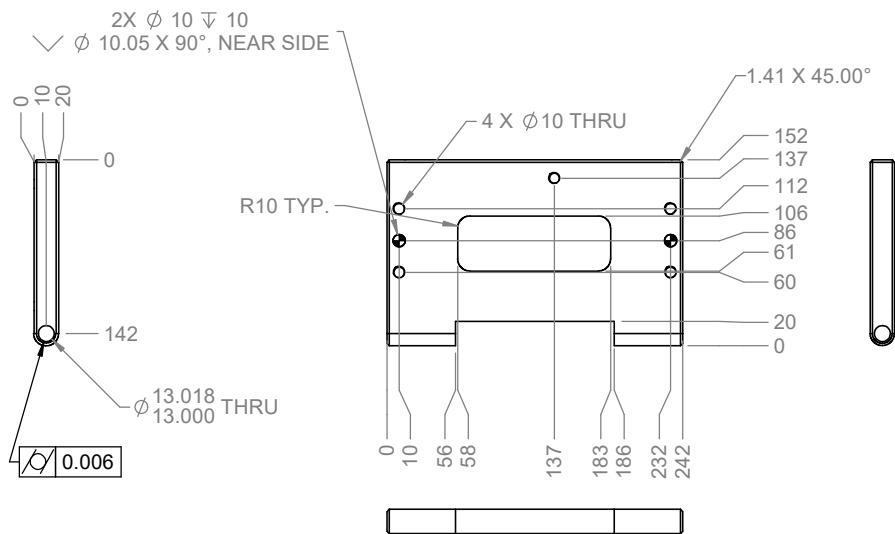
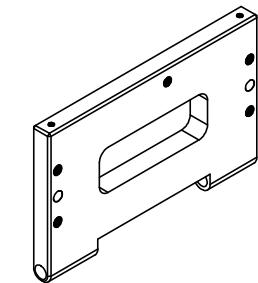
WEIGHT

g

SHEET 1 OF 1

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| | | |
|-------------|-----|-------------|
| 101108 | 00 | JIG FRONT |
| PART NUMBER | REV | DESCRIPTION |

| | |
|---|--------|
| UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994 DIMENSIONS ARE IN MILLIMETERS TOLERANCES APPLY AS SHOWN BELOW | |
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | ± 1° |
| SURFACE ROUGHNESS | 1.6 µm |
| THIRD ANGLE PROJECTION | |

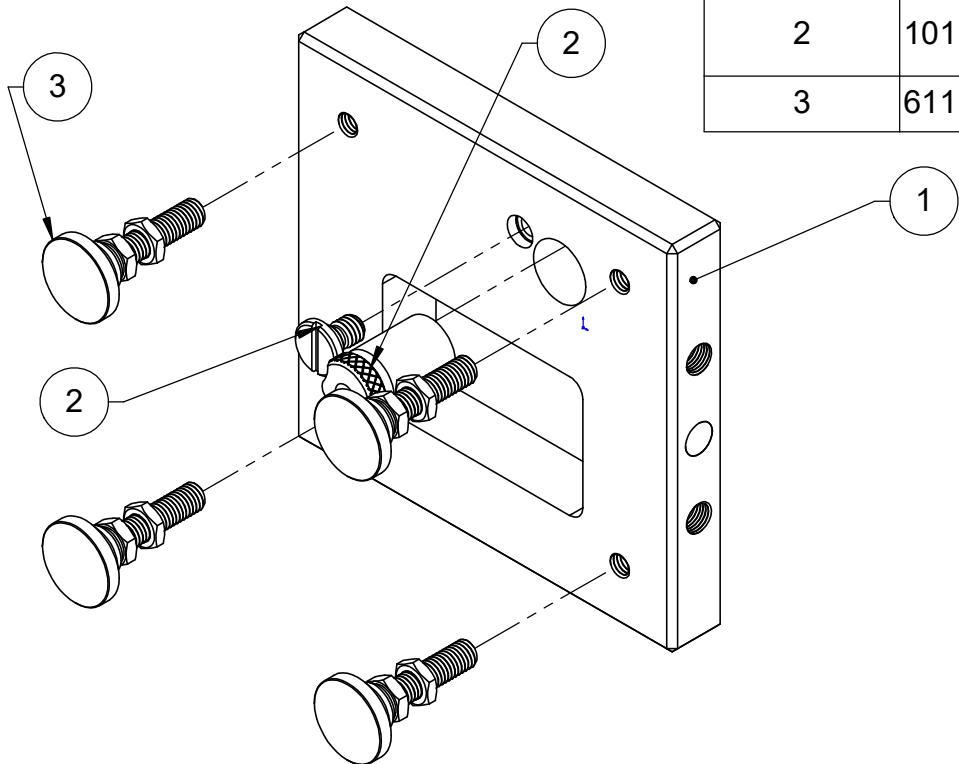
| | |
|---|---------|
| SolidWorks MAINTAINED DATA CANNOT BE EDITED OR MANIPULATED ELECTRONICALLY BY THE DESIGN ACTIVITY | |
| PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College | |
| CUSTOMER | PROJECT |
| DRAWN BY | DATE |
| CHECKED BY | DATE |
| APPROVED | DATE |

| | |
|---|------------|
| CONESTOGA Connect Life and Learning | |
| 299 Doon Valley Drive, Kitchener, ON, N2G 4M4 | |
| JIG FRONT | |
| SIZE | DRAWING NO |
| B | 1:4 |
| SCALE | WEIGHT |
| 1:4 | g |
| SHEET 1 OF 1 | |

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|--|------|
| 1 | 101106 | JIG LEFT | 1 |
| 2 | 101102 | 7 MM BUSHING (WITH SLEEVES & LOCK SCREW) | 1 |
| 3 | 6111K652 | Swivel Leveling Mount | 4 |



| | | |
|-------------|-----|-------------------|
| 111005 | 00 | LEFT SUB ASSEMBLY |
| PART NUMBER | REV | DESCRIPTION |

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING

INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994

DIMENSIONS ARE IN MILLIMETRES
TOLERANCES APPLY AS SHOWN BELOW

| | |
|-------------------|-------------------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | $\pm 1^\circ$ |
| SURFACE ROUGHNESS | $1.6 \mu\text{m}$ |

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY

NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College.

CUSTOMER

PROJECT



299 Doon Valley Drive, Kitchener, ON, N2G 4M4

LEFT SUB ASSEMBLY

DRAWN BY _____ DATE _____

CHECKED BY _____ DATE _____

APPROVED _____ DATE _____

SIZE _____ DRAWING NO _____

SCALE _____

1:2

WEIGHT _____

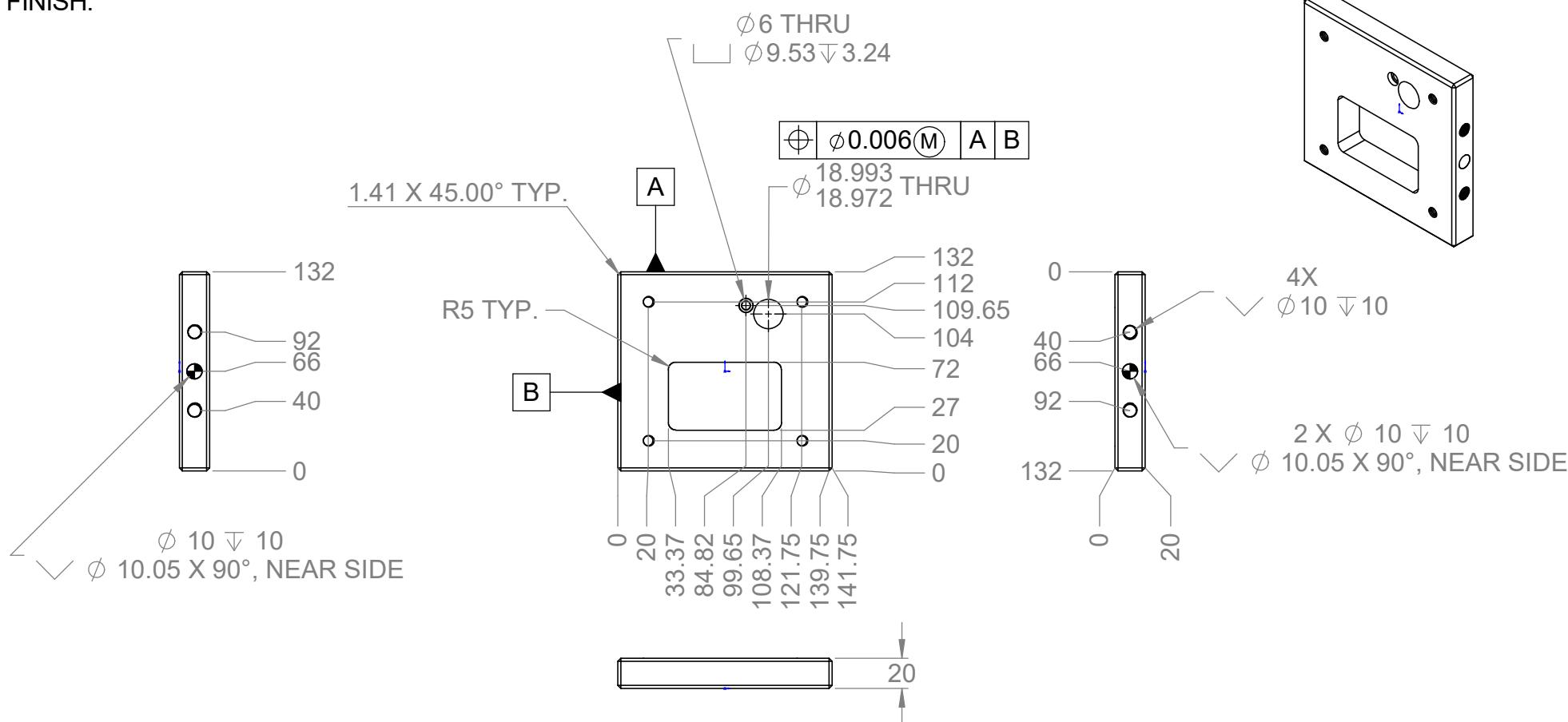
111004 00

g SHEET 1 OF 1

NOTES:

1. MATERIAL:
2. STOCK SIZE:
3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| | | |
|-------------|-----|-------------|
| 101106 | 00 | JIG LEFT |
| PART NUMBER | REV | DESCRIPTION |

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING
INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994
DIMENSIONS ARE IN MILLIMETRES
TOLERANCES APPLY AS SHOWN BELOW

| | |
|-------------------|-------------------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | $\pm 1^\circ$ |
| SURFACE ROUGHNESS | 1.6 μm |

THIRD ANGLE PROJECTION

SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY
NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College.

CUSTOMER _____

PROJECT _____

DRAWN BY _____ DATE _____

CHECKED BY _____ DATE _____

APPROVED _____ DATE _____

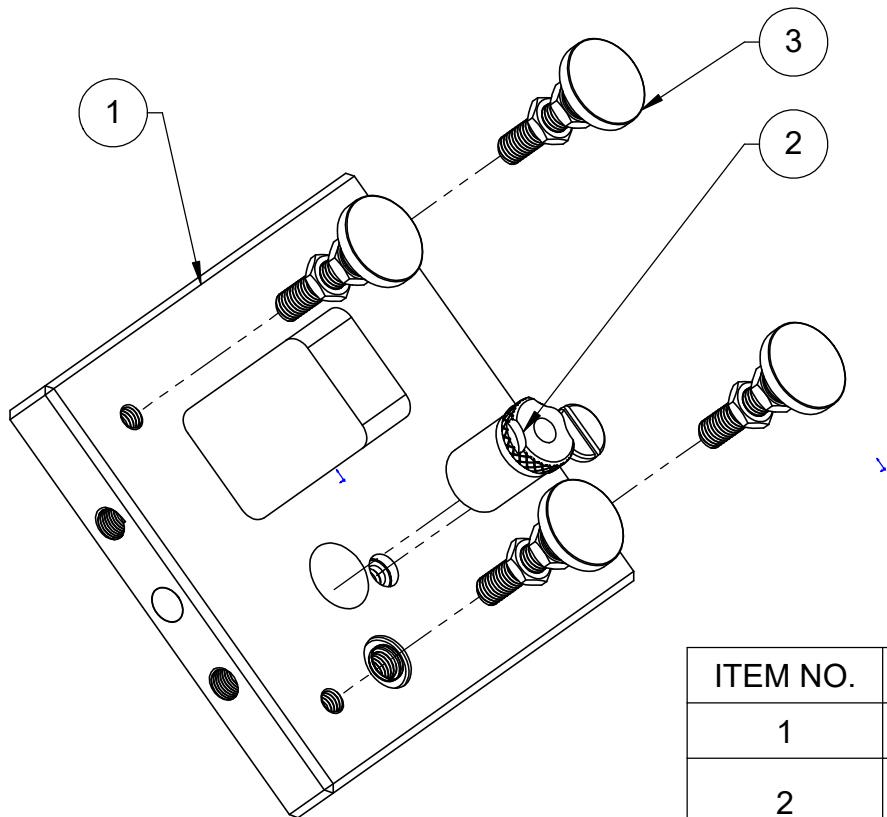


299 Doon Valley Drive, Kitchener, ON, N2G 4M4

JIG LEFT

| SIZE | DRAWING NO | REVISION |
|-------|--------------|----------|
| A | 101106 | 00 |
| SCALE | 1:4 | WEIGHT |
| g | SHEET 1 OF 1 | |

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:



| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|---|------|
| 1 | 101107 | JIG RIGHT | 1 |
| 2 | 101102 | 7 MM BUSHING (WITH SLEEVE & LOCK SCREW) | 1 |
| 3 | 6111K652 | SWIVEL LEVELLING MOUNT | 4 |

| | | |
|-------------|-----|--------------------|
| 111005 | 00 | RIGHT SUB ASSEMBLY |
| PART NUMBER | REV | DESCRIPTION |

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING

INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994

DIMENSIONS ARE IN MILLIMETRES
TOLERANCES APPLY AS SHOWN BELOW

| | |
|-------------------|-------------------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | $\pm 1^\circ$ |
| SURFACE ROUGHNESS | 1.6 μm |

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY

NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College.

CUSTOMER

PROJECT



299 Doon Valley Drive, Kitchener, ON, N2G 4M4

TITLE

RIGHT SUB ASSEMBLY

SIZE

DRAWING NO

A

111005 00

REVISION

SCALE

1:2

WEIGHT

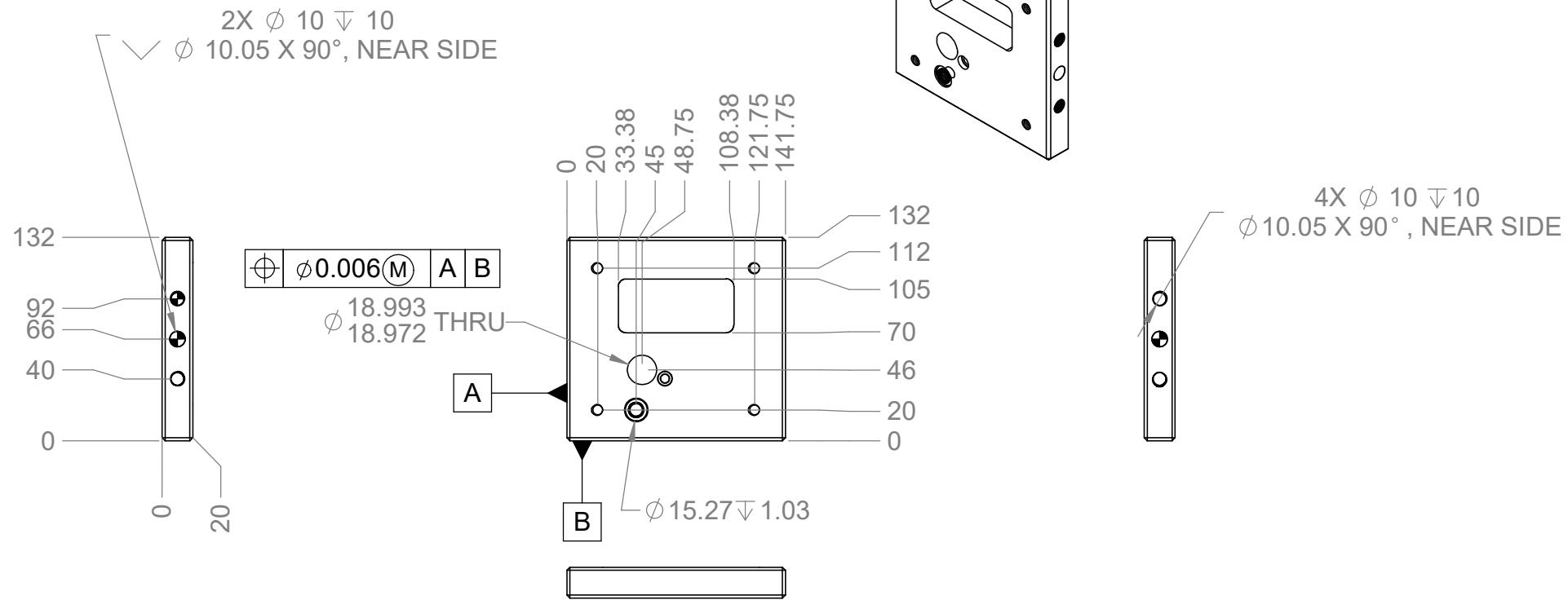
g

SHEET 1 OF 1

NOTES:

1. MATERIAL:
2. STOCK SIZE:
3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| | | |
|-------------|-----|-------------|
| 101107 | 00 | JIG RIGHT |
| PART NUMBER | REV | DESCRIPTION |

| | |
|--|--|
| UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING | |
| INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994 | |
| DIMENSIONS ARE IN MILLIMETRES | |
| TOLERANCES APPLY AS SHOWN BELOW | |
| 0 PL DEC \pm 0.5 1 PL DEC \pm 0.25 2 PL DEC \pm 0.13 3 PL DEC \pm 0.05 ANGLES \pm 1° SURFACE ROUGHNESS 1.6 μ m | |
| THIRD ANGLE PROJECTION | |
| | |

| | |
|---|-------------|
| SOLIDWORKS MAINTAINED DATA CHANGES SHALL BE INCORPORATED ELECTRONICALLY BY THE DESIGN ACTIVITY | PROPRIETARY |
| NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College. | CUSTOMER |
| | PROJECT |
| DRAWN BY | DATE |
| CHECKED BY | DATE |
| APPROVED | DATE |
| SCALE | DRAWING NO |
| A | 1:4 |
| | WEIGHT |



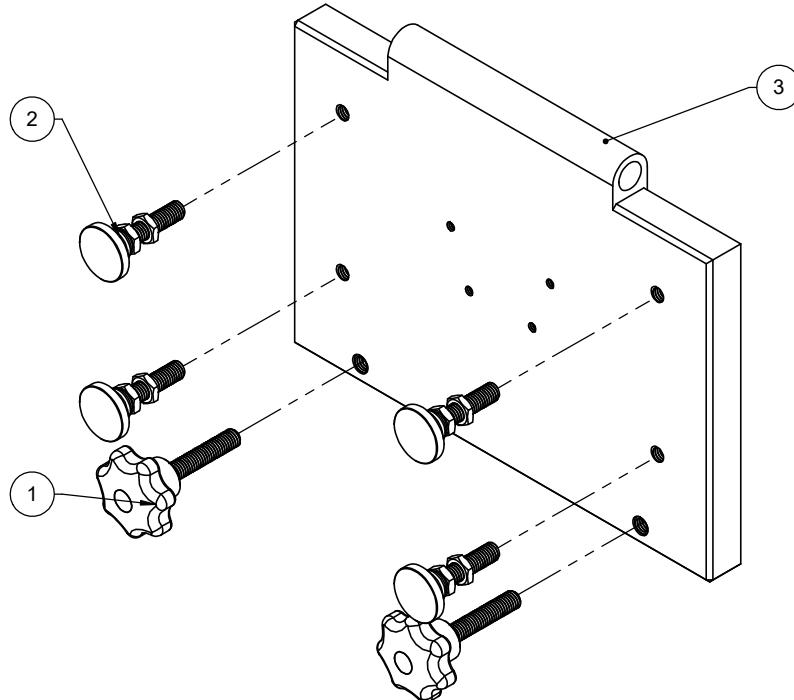
299 Doon Valley Drive, Kitchener, ON, N2G 4M4

JIG RIGHT**101107 00**

g SHEET 1 OF 1

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. |
|----------|-------------|----------------------------------|------|
| 1 | 3855K691 | PLASTIC KNOB WITH SEVEN ARM GRIP | 2 |
| 2 | 6111K652 | SWIVEL LEVELLING MOUNT | 4 |
| 3 | 101105 | JIG TOP | 1 |

| | | |
|-------------|-----|------------------|
| 111003 | 00 | TOP SUB ASSEMBLY |
| PART NUMBER | REV | DESCRIPTION |

| | | | |
|---|--|---|--|
| UNLESS OTHERWISE SPECIFIED DO NOT SCALE DRAWING INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994 DIMENSIONS ARE IN MILLIMETERS TOLERANCES APPLY AS SHOWN BELOW | | SolidWorks MAINTAINED DATA CHANGES ARE AUTOMATICALLY UPATED ELECTRONICALLY BY THE DESIGN ACTIVITY | |
| 0 PL DEC | | ± 0.5 | |
| 1 PL DEC | | ± 0.25 | |
| 2 PL DEC | | ± 0.13 | |
| 3 PL DEC | | ± 0.05 | |
| ANGLES | | $\pm 1^\circ$ | |
| SURFACE ROUGHNESS | | 1.6 μm | |
| THIRD ANGLE PROJECTION | | | |

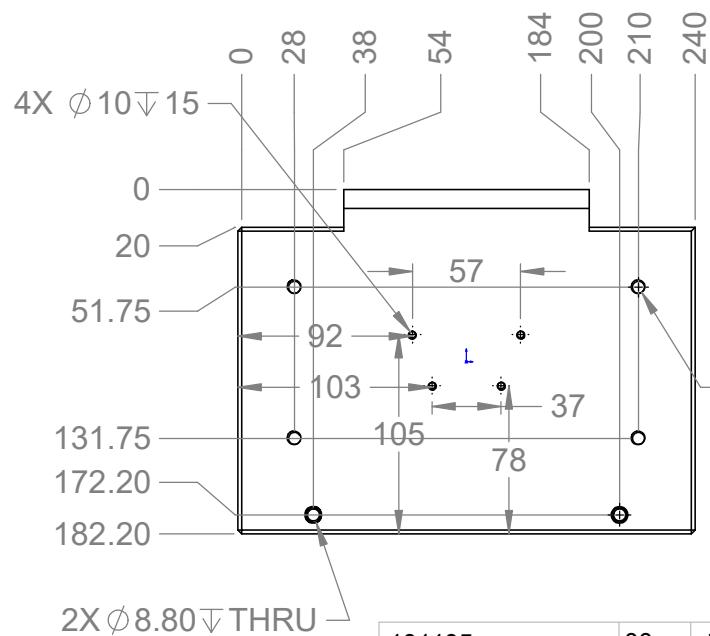
| | |
|---|---|
| SOLIDWORKS MAINTAINED DATA CHANGES ARE AUTOMATICALLY UPATED ELECTRONICALLY BY THE DESIGN ACTIVITY | PROPRIETARY NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF Conestoga College |
| CUSTOMER | PROJECT |
| DRAWN BY | DATE |
| CHECKED BY | DATE |
| APPROVED | DATE |

| | | | |
|-------------------------|--|--------|---|
| TITLE | C CONESTOGA Connect Life and Learning | | 299 Doon Valley Drive, Kitchener, ON, N2G 4M4 |
| | | | |
| TOP SUB ASSEMBLY | | | |
| SIZE | DRAWING NO | | |
| B | | | |
| SCALE | 1:2 | WEIGHT | g |
| 111003 00 | | | SHEET 1 OF 1 |

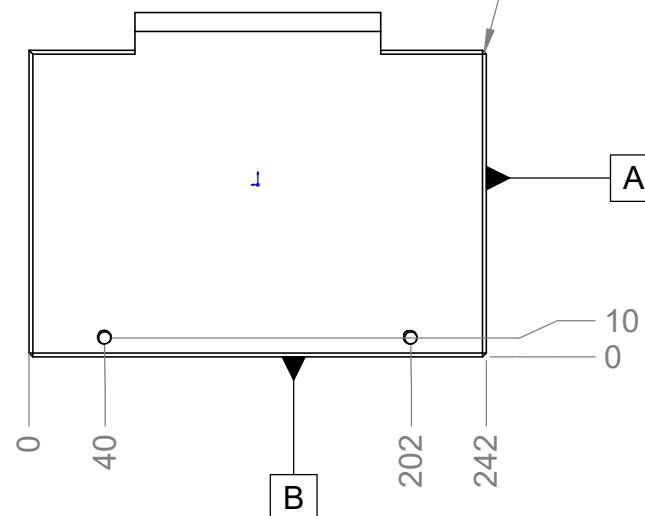
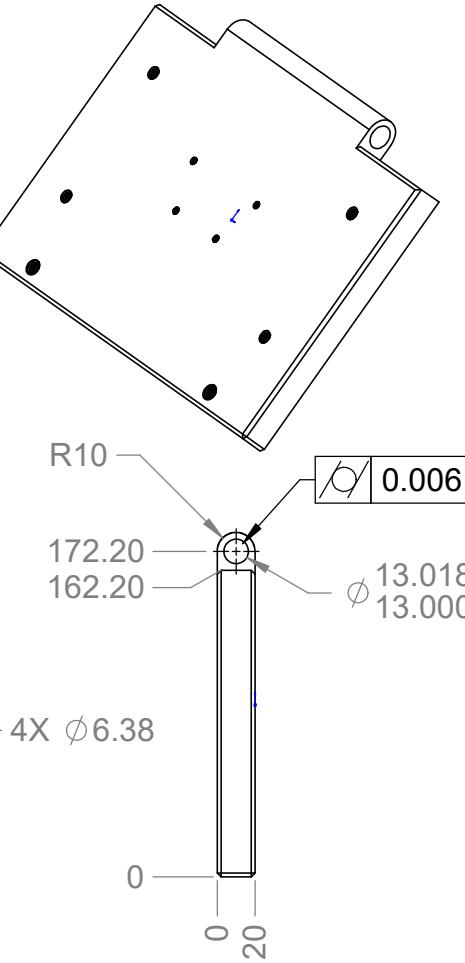
NOTES:

1. MATERIAL:
2. STOCK SIZE:
3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| | | |
|-------------|-----|-------------|
| 101105 | 00 | JIG TOP |
| PART NUMBER | REV | DESCRIPTION |



UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING

INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994

DIMENSIONS ARE IN MILLIMETRES
TOLERANCES APPLY AS SHOWN BELOW

| | |
|-------------------|--------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | ± 1° |
| SURFACE ROUGHNESS | 1.6 µm |

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY

NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College.

CUSTOMER

PROJECT



CONESTOGA
Connect Life and Learning

299 Doon Valley Drive, Kitchener, ON, N2G 4M4

JIG TOP

| | |
|------------|------|
| DRAWN BY | DATE |
| CHECKED BY | DATE |
| APPROVED | DATE |

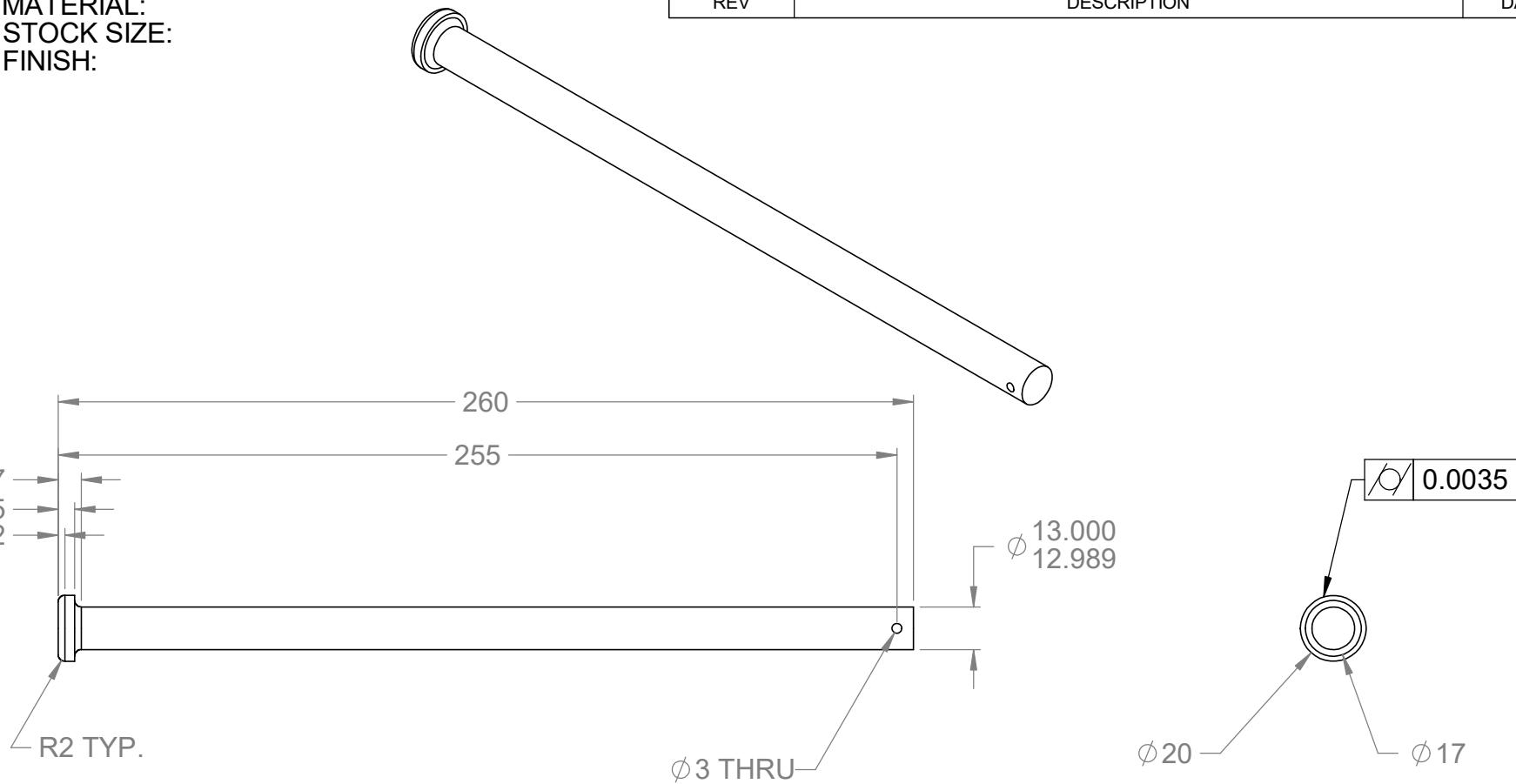
| SIZE | DRAWING NO | REVISION | |
|------|------------|----------|--------|
| | | SCALE | WEIGHT |
| A | 1:4 | | g |

101105 00

SHEET 1 OF 1

NOTES:
 1. MATERIAL:
 2. STOCK SIZE:
 3. FINISH:

| REVISIONS | | | |
|-----------|-------------|------|------|
| REV | DESCRIPTION | DATE | APVD |



| | | |
|-------------|-----|-------------|
| 111009 | 00 | HINGE PIN |
| PART NUMBER | REV | DESCRIPTION |

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING

INTERPRET DIMENSIONS AND TOLERANCES
PER ASME Y14.5M-1994

DIMENSIONS ARE IN MILLIMETRES
TOLENCES APPLY AS SHOWN BELOW

| | |
|-------------------|-------------------|
| 0 PL DEC | ± 0.5 |
| 1 PL DEC | ± 0.25 |
| 2 PL DEC | ± 0.13 |
| 3 PL DEC | ± 0.05 |
| ANGLES | $\pm 1^\circ$ |
| SURFACE ROUGHNESS | 1.6 μm |

THIRD ANGLE PROJECTION



SolidWorks MAINTAINED DATA
CHANGES SHALL BE INCORPORATED
ELECTRONICALLY BY THE DESIGN ACTIVITY

PROPRIETARY

NO PART OF THIS DOCUMENT MAY BE REPRODUCED,
STORED IN A RETRIEVAL SYSTEM, OR TRANSMITTED IN
ANY FORM, WITHOUT THE WRITTEN PERMISSION OF
Conestoga College.

CUSTOMER

PROJECT



299 Doon Valley Drive, Kitchener, ON, N2G 4M4

HINGE PIN

DRAWN BY _____ DATE _____

CHECKED BY _____ DATE _____

APPROVED _____ DATE _____

SIZE _____ DRAWING NO _____

SCALE _____

1:2

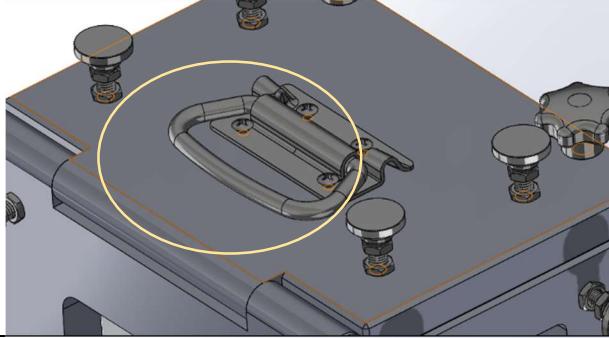
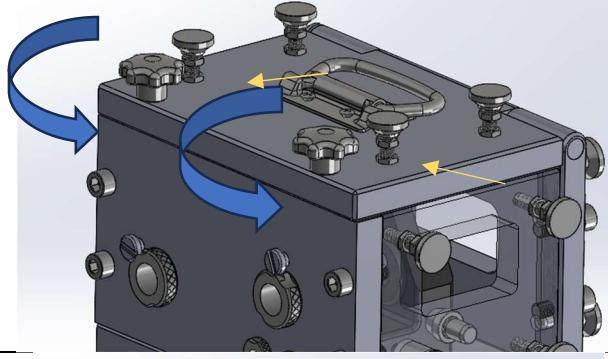
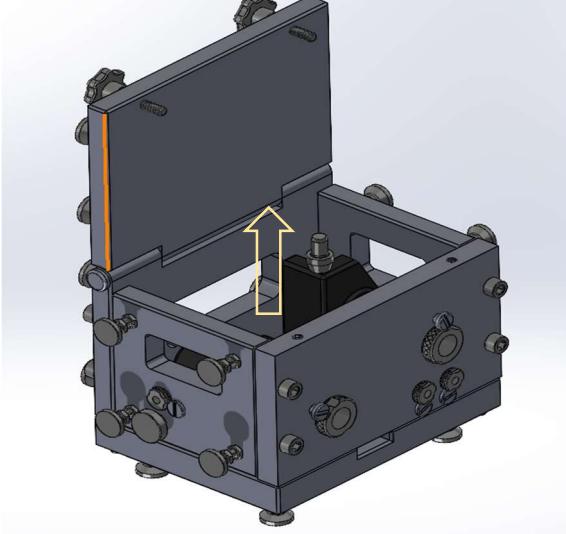
WEIGHT _____

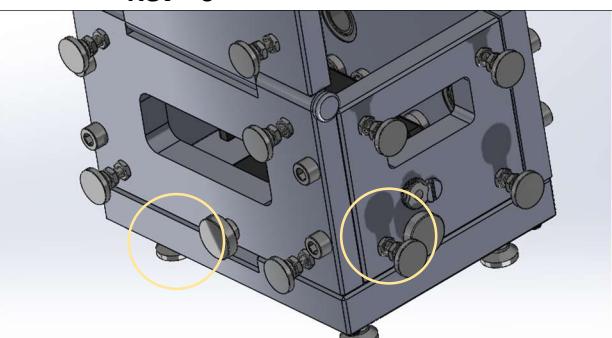
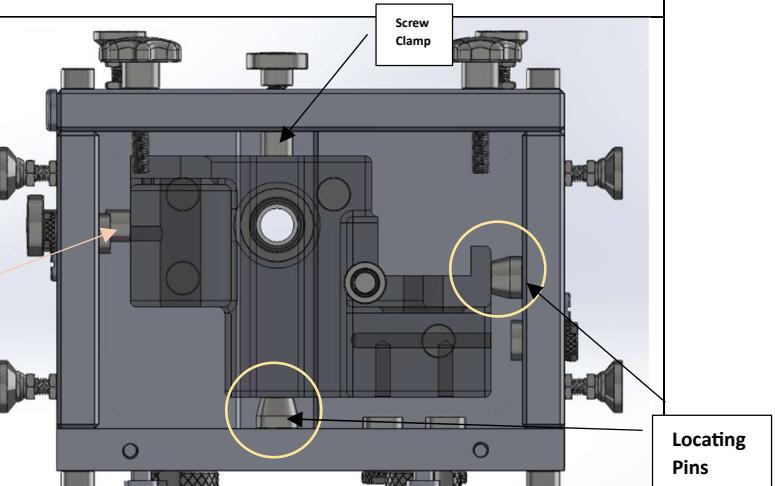
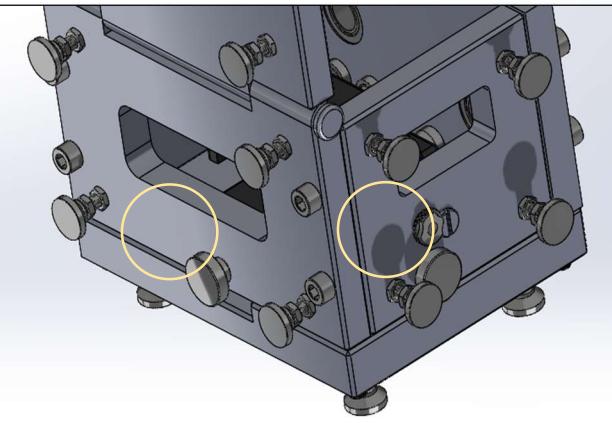
111009 00

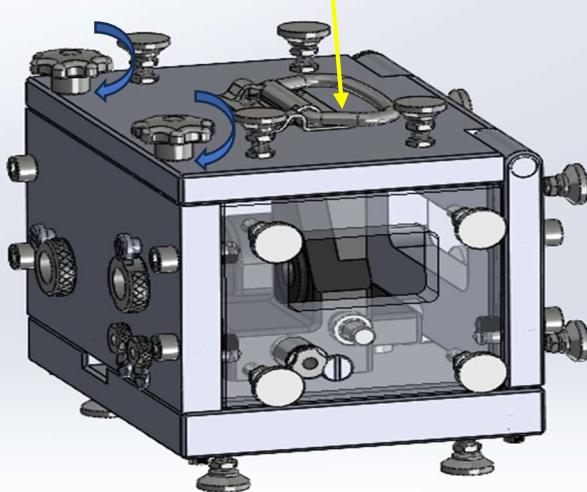
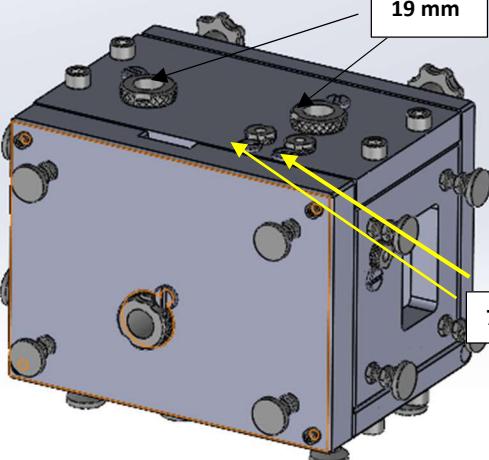
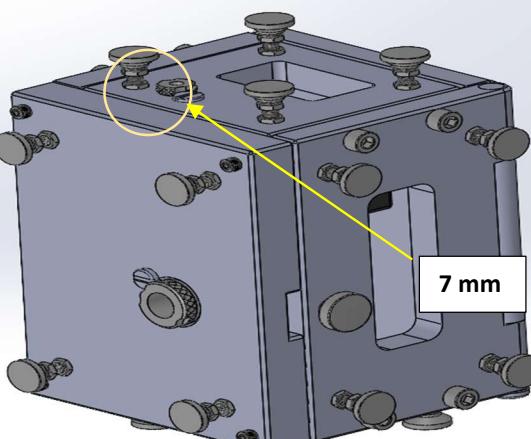
g SHEET 1 OF 1

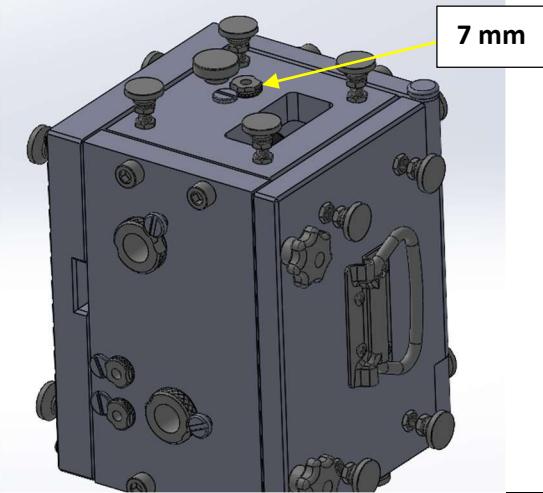
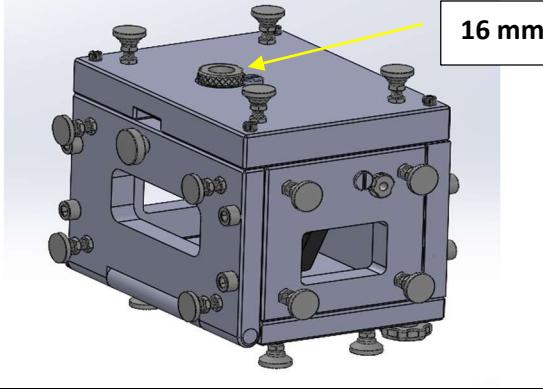
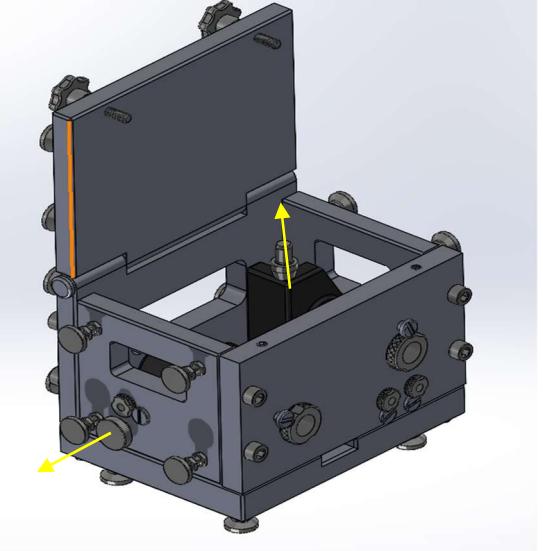
Operator Instructions:

Below is the Detailed step by step instructions to use jig

| Roller Rest Bracket Working Instructions | | |
|--|---|--|
| Manufacturer: | KM Manufacturing | |
| Date: 29-07-2023 | Rev - 0 | |
| Holding the Jig | Carefully hold the jig from the handles on the top. |  |
| Step 1 | After holding the Jig in the vise properly. Turn the two Easy knobs anti- Clockwise to open the top portion of the jig. |  |
| Step 3 | After Opening the knobs open the Jig |  |

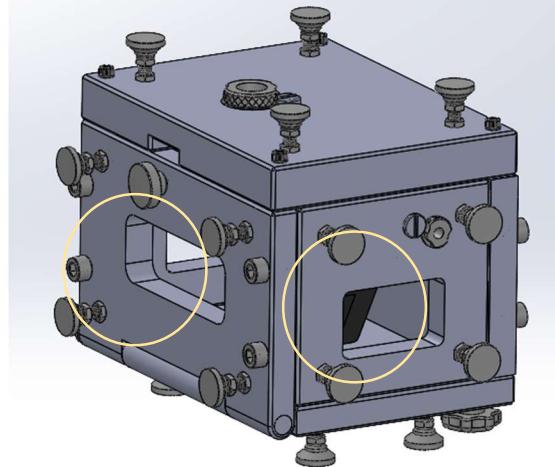
| Roller Rest Bracket Working Instructions | | |
|--|---|--|
| Manufacturer: | KM Manufacturing | |
| Date: 29-07-2023 | Rev - 0 | |
| Step 4 | Unscrew the screw clamp from two sides of the Jig. |  |
| Step 5 | Slide Down the part from the top carefully between the Locating pins. |  |
| Step 6 | Tight the screw clamp back and screw the part properly. |  |

| | | |
|--------|--|--|
| Step 7 | <p>Close the lid and turn the knob in Clockwise direction. The locators on the part will restrict the movements of the part and hold it properly.</p> |  |
| Step 8 | <p>Rotate the jig 90 degrees and set the Jig as shown in figure. Start operation 30 to drill 2 X 19 mm holes using appropriate Drill bit and then start operation 40 to drill 2 X 7 mm holes with required drill size.</p> |  |
| Step 9 | <p>Reorient the Jig as shown in figure and start operation 60 to make the 1 x 7 mm diameter and 65 mm deep hole using the required drill bit.</p> |  |

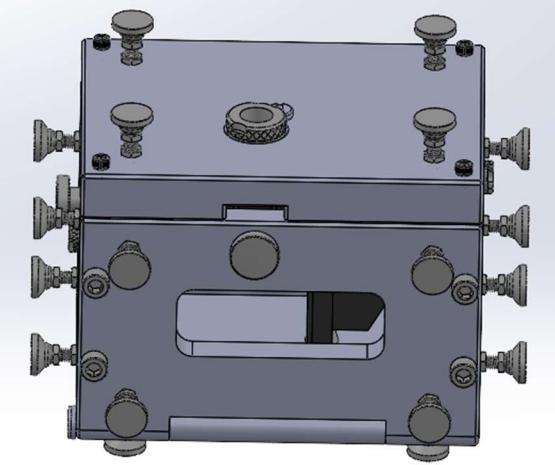
| | | |
|---------|--|--|
| Step 10 | <p>Turn the Jig 180 degrees and set as shown in figure and continue with operation 50 to drill 7 mm hole.</p> |  |
| Step 11 | <p>Reorient the Jig as shown in figure and start operation 70 to drill 1 x 16 mm thru hole.</p> |  |
| Step 12 | <p>Turn the Jig upside down and unscrew screw clamps and then Open easy knobs on the top to release the manufactured part.</p> |  |

Features of this Jig

Gaps on the sides allow chips from drilling operation to fall outside.



Legs on all sides allow drilling operation in all direction and make jig useful to modify in future.





KM MANUFACTURING

Clamping Force Calculations:

| Clamping Force Calculations | | | | | | | | |
|-----------------------------|------------------------------|------------------|---|------|--------------------|------------------------|-------------------------|--|
| OP No | Roughing Hole Dia (mm) | Hole Dia (in) | Cutting Speed in Feet per minute per Minute | H.P | Torque inch lbs | Cutting Force (lbs) | Clamping Force (lbs) | |
| | | | | | | | | |
| 30 | 18.5 | 0.7284 | 150 | 1.26 | 53.04 | 278.14 | 1113 | |
| 30 | 18.5 | 0.7284 | 150 | 1.26 | 53.04 | 278.14 | 1113 | |
| 40 | 6.746 | 0.266 | 150 | 0.46 | 7.07 | 101.57 | 406 | |
| 50 | 6.746 | 0.266 | 150 | 0.46 | 7.07 | 101.57 | 406 | |
| 60 | 15.875 | 0.625 | 150 | 1.08 | 39.05 | 238.66 | 955 | |
| 70 | 12.5 | 0.492 | 150 | 0.85 | 24.2 | 187.87 | 751 | |
| 70 | 6.746 | 0.266 | 150 | 0.46 | 7.07 | 101.57 | 406 | |

| Cost Analysis | | | | | | |
|--|------------------|--------------------------|--|----------|----------|------------|
| Manufacturer: | KM Manufacturing | Date: | 2023-07-29 | Revision | 0 | |
| Part Name | Part type | Part # | Part Description | Quality | Price | Total Cost |
| Removable Drill Bushing | Bushing | 8493A168 | Removable Drill Bushing 0.2656" ID, 1/2" OD, 1" Long | 6 | \$ 18.37 | \$ 110.22 |
| Lock Screw for Removable Drill Bushings | Lock Screw | 8496A13 | Lock Screw for Removable Drill Bushings, Slotted, for 5/16", 1/2" and 3/4" Bushing OD | 6 | \$ 2.10 | \$ 12.60 |
| Sleeve for Removable Drill Bushing | Liner | 3556N159 | Sleeve for Removable Drill Bushing for 1/2" Bushing OD, 1" Long | 6 | \$ 9.56 | \$ 57.36 |
| Removable Drill Bushing | Bushing | 8493A285 | Removable Drill Bushing, 0.6563" ID, 1" OD, 1" Long | 2 | \$ 20.65 | \$ 41.30 |
| Lock Screw for Removable Drill Bushings | Lock Screw | 8496A15 | Lock Screw for Removable Drill Bushings, Slotted, for 1" and 1-3/8" Bushing OD | 2 | \$ 21.19 | \$ 42.38 |
| Sleeve for Removable Drill Bushing | Liner | 3556N198 | Sleeve for Removable Drill Bushing for 1" Bushing OD, 3/4" Long | 2 | \$ 13.57 | \$ 27.14 |
| Removable Drill Bushing | Bushing | 8493A285 | Removable Drill Bushing, 0.6563" ID, 1" OD, 1" Long | 1 | \$ 20.65 | \$ 20.65 |
| Lock Screw for Removable Drill Bushings | Lock Screw | 8496A15 | Lock Screw for Removable Drill Bushings, Slotted, for 1" and 1-3/8" Bushing OD | 1 | \$ 21.19 | \$ 21.19 |
| Sleeve for Removable Drill Bushing | Liner | 3556N198 | Sleeve for Removable Drill Bushing for 1" Bushing OD, 3/4" Long | 1 | \$ 13.57 | \$ 13.57 |
| Swivel Leveling Mount | Swivel Feet | 6111K652 | Swivel Leveling Mount, Nickel Plated Steel with 32 mm Long M8 Threaded Stud | 20 | \$ 6.31 | \$ 126.20 |
| Plastic Knob with Seven Arm Grip | Easy Knob | 3855K691 | Plastic Knob with Seven Arm Grip with M8 x 1.25 mm Thread 40mm Long Stud | 2 | \$ 6.22 | \$ 12.44 |
| Round Folding Pull Handle with Mount Plate | Handle | 1647A111 | Round Folding Pull Handle with Mount Plate, Dull Steel, 3-3/8" Wide Handle, 1-3/4" High Mounting Plate | 1 | \$ 6.09 | \$ 6.09 |

| | | | | | | |
|---|-------------------|---------------------------|---|---|-----------|----------|
| Passivated 18-8 Stainless Steel Phillips Oval Head Screws | Screws | 91802A244 | Passivated 18-8 Stainless Steel Phillips Oval Head Screws, 10-24 Thread, 5/8" Long | 4 | \$ 0.11 | \$ 0.46 |
| Fine-Thread Alloy Steel Socket Head Screw | Socket Head Screw | 96144A263 | Fine-Thread Alloy Steel Socket Head Screw, M10 x 1 mm Thread, 30 mm Long | 8 | \$ 1.00 | \$ 8.00 |
| Alloy Steel Socket Head Screw | Socket Head Screw | 91290A203 | Alloy Steel Socket Head Screw, Black-Oxide, M6 x 1 mm Thread, 40 mm Long, Fully Threaded | 4 | \$ 0.59 | \$ 2.34 |
| Press-Fit Locating and Support Button | Rest Button | 3097N13 | Press-Fit Locating and Support Button, 16 mm Diameter | 4 | \$ 13.38 | \$ 53.52 |
| Locating Pin | Locating Pin | 2336A116 | Locating Pin, 20 mm Diameter x 15 mm High Round Head | 3 | \$ 9.09 | \$ 27.27 |
| Clamp Screw | Clamp Screw | 6214K44 | Comfort-Grip Plastic Knurled Knob with 1/4"-20 Thread 1-1/4" Long Stud, 1-9/16" Head Diameter | 2 | \$ 3.43 | \$ 6.86 |
| Steel Eyebolt | Steel Eyebolt | 3040T14 | Steel Eyebolt - for lifting M10 x 1.5 Thread Size, 20 mm Thread Length | 2 | \$ 6.96 | \$ 8.96 |
| Cotter Pin | Cotter Pin | 98350A112 | Cotter Pin, Hairpin, 18-8 Stainless Steel, for 10 mm-16 mm Pin Diameter | 1 | \$ 4.00 | \$ 4.00 |
| Total | | | | | \$ 602.55 | |

| Material | | | | | | |
|------------|-----------|-------------------------|---|---------|-----------|------------|
| Part Name | Part type | Part # | Part Description | Quality | Price | Total Cost |
| Tool Steel | N/A | 9019K76 | Tight-Tolerance Air-Hardening A2 Tool Steel Bar, 3/4" Thick, 1" Wide, 6 Feet Long | 1 | \$ 287.00 | \$ 287.00 |
| | | | Total | | | \$ 287.00 |

| Manufacturing Cost | | | | | | |
|--------------------|-----------------|-----------|--|--|--------------------|--|
| Type | Rate (Per hour) | Time (Hr) | | | Cost | |
| Labour | \$ 80.00 | 15 | | | \$ 1,200.00 | |
| | | | | | Total Cost | |
| | | | | | \$ 2,089.55 | |