

# ID Studio 7: Capstone

# Ban Ban

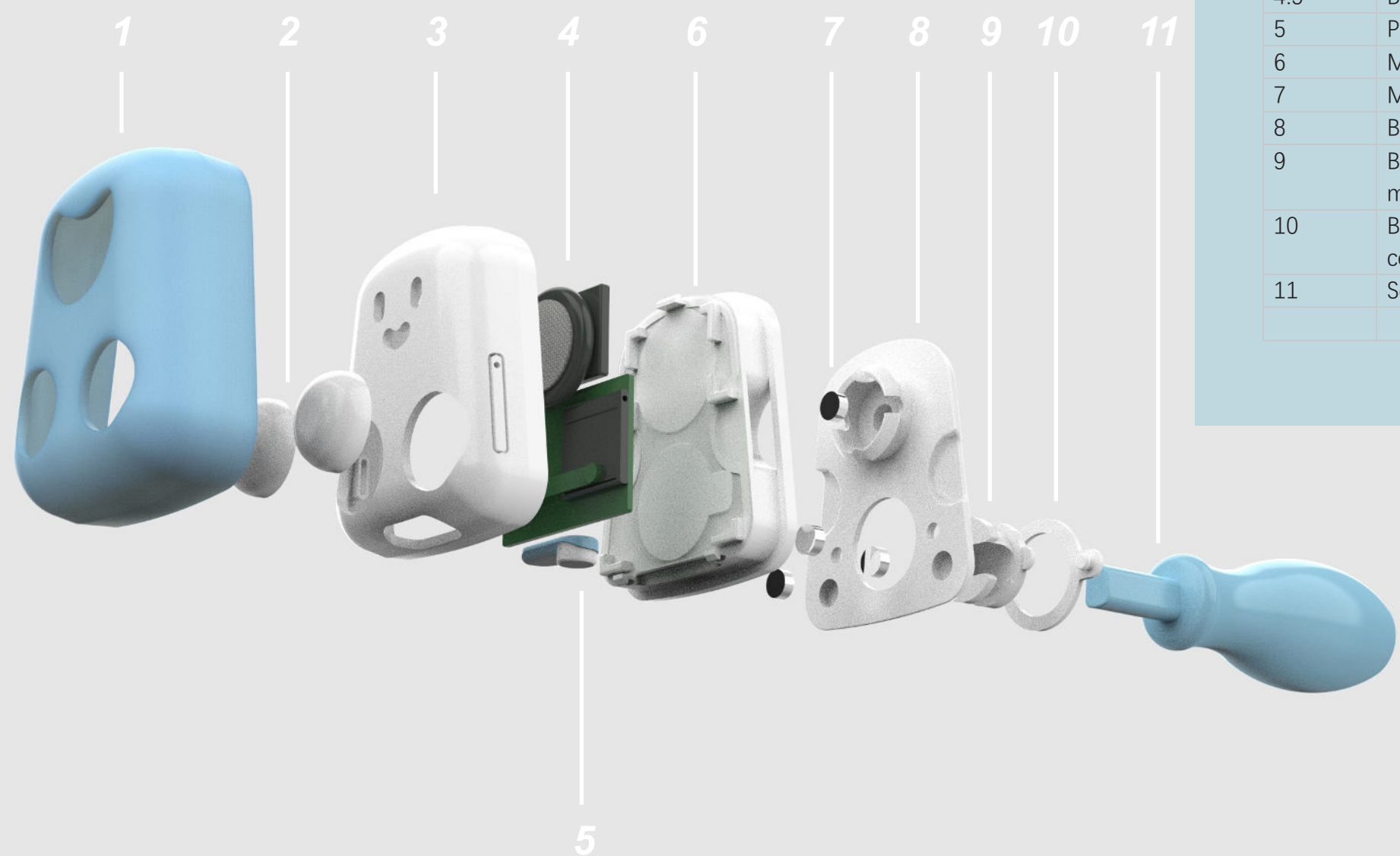
Children with ASD in China: Safety & Independence

Technical report

Xuanxuan (Stella) Ke | N11478128

# Exploded view

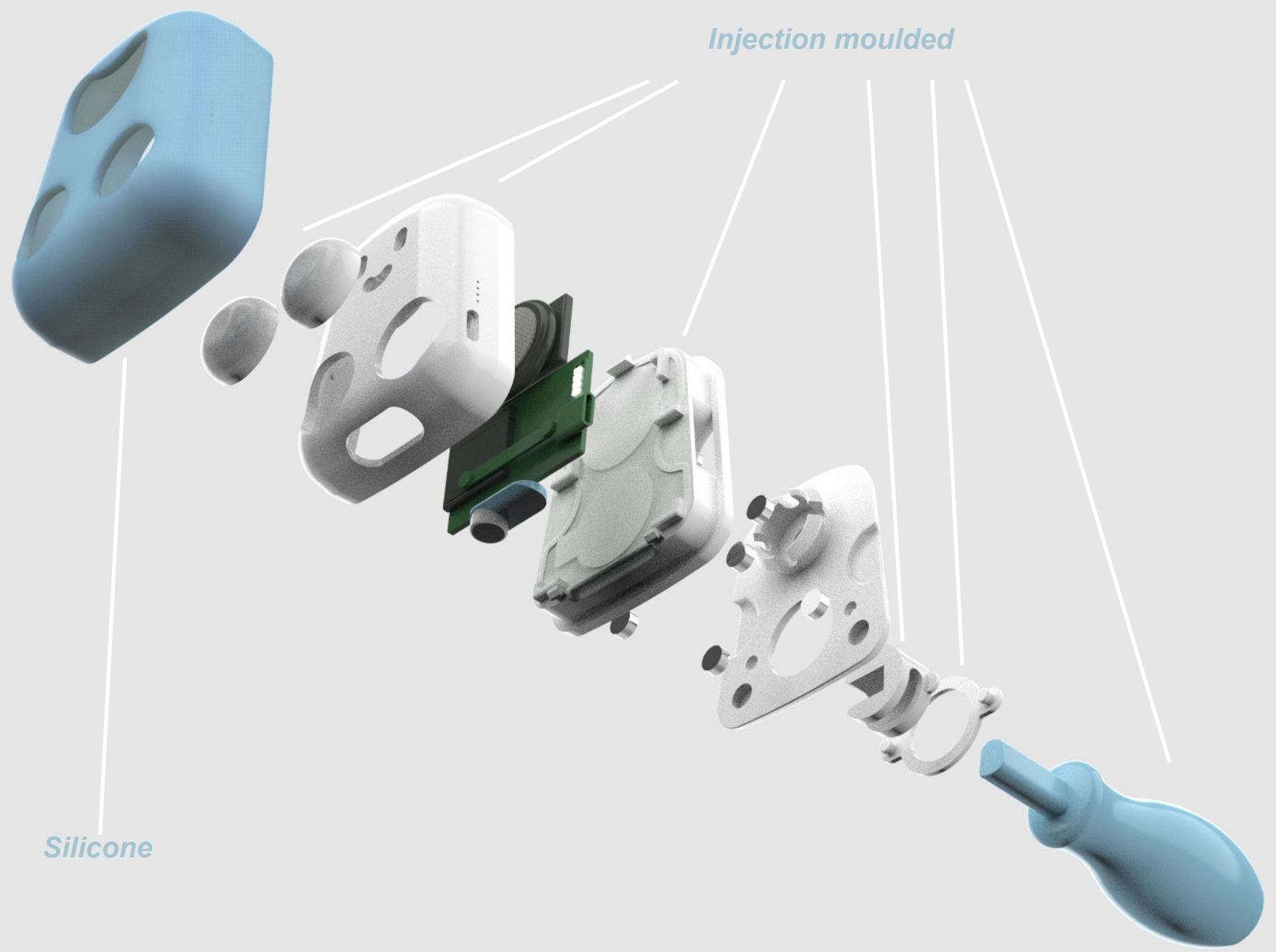
With CMF



| PART NUMBER | PART NAME                 | MATERIAL      | Finishes (Colour)  | Qty. | MAKE/BUY      |
|-------------|---------------------------|---------------|--------------------|------|---------------|
| 1           | Silicon cover             | Silicone      | Matte (Light blue) | 1    | Make          |
| 2           | Button cover              | ABS (Plastic) | Matte (White)      | 2    | Make          |
| 3           | Top body cover            | ABS (Plastic) | Matte (White)      | 1    | Make          |
| 4.1         | PCB board                 | -             | -                  | 1    | Off the shelf |
| 4.2         | Speaker                   | ABS (Plastic) | Black              | 1    | Off the shelf |
| 4.3         | Speaker cover             | Fabric        | Grey               | 1    | Off the shelf |
| 4.4         | SD card holder            | ABS (Plastic) | White              | 1    | Off the shelf |
| 4.5         | Battery                   | -             | -                  | 1    | Off the shelf |
| 5           | Power button cover        | ABS (Plastic) | Matte (White)      | 2    | Make          |
| 6           | Middle component          | ABS (Plastic) | Matte (White)      | 1    | Make          |
| 7           | Magnets                   | -             | -                  | 6    | Off the shelf |
| 8           | Bottom base               | ABS (Plastic) | Matte (White)      | 1    | Make          |
| 9           | Bottom cam lock mechanism | ABS (Plastic) | Matte (White)      | 1    | Make          |
| 10          | Bottom mechanism cover    | ABS (Plastic) | Matte (White)      | 1    | Make          |
| 11          | Screwdriver               | ABS (Plastic) | Matte (Light Blue) | 1    | Make          |
|             |                           |               |                    | 22   |               |

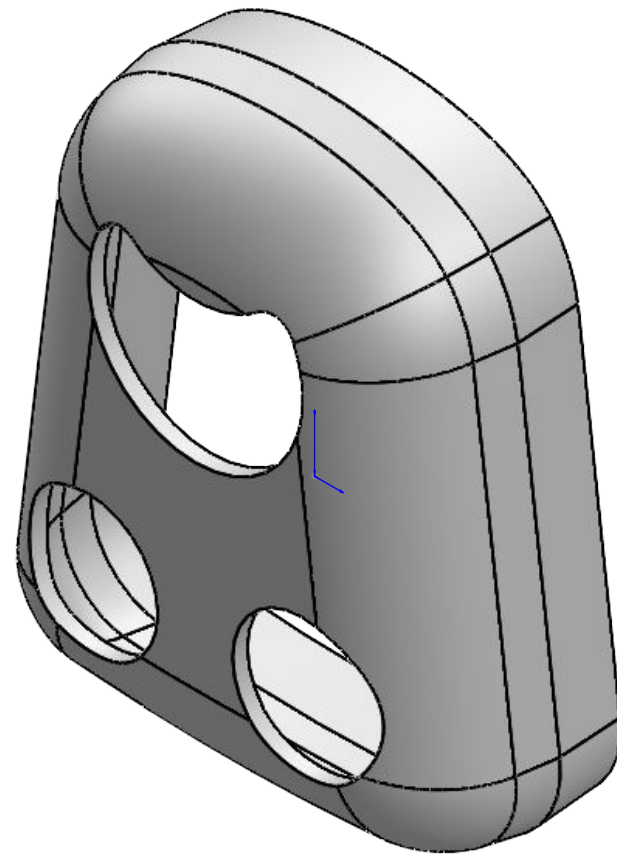
# Manufacturing

With CMF

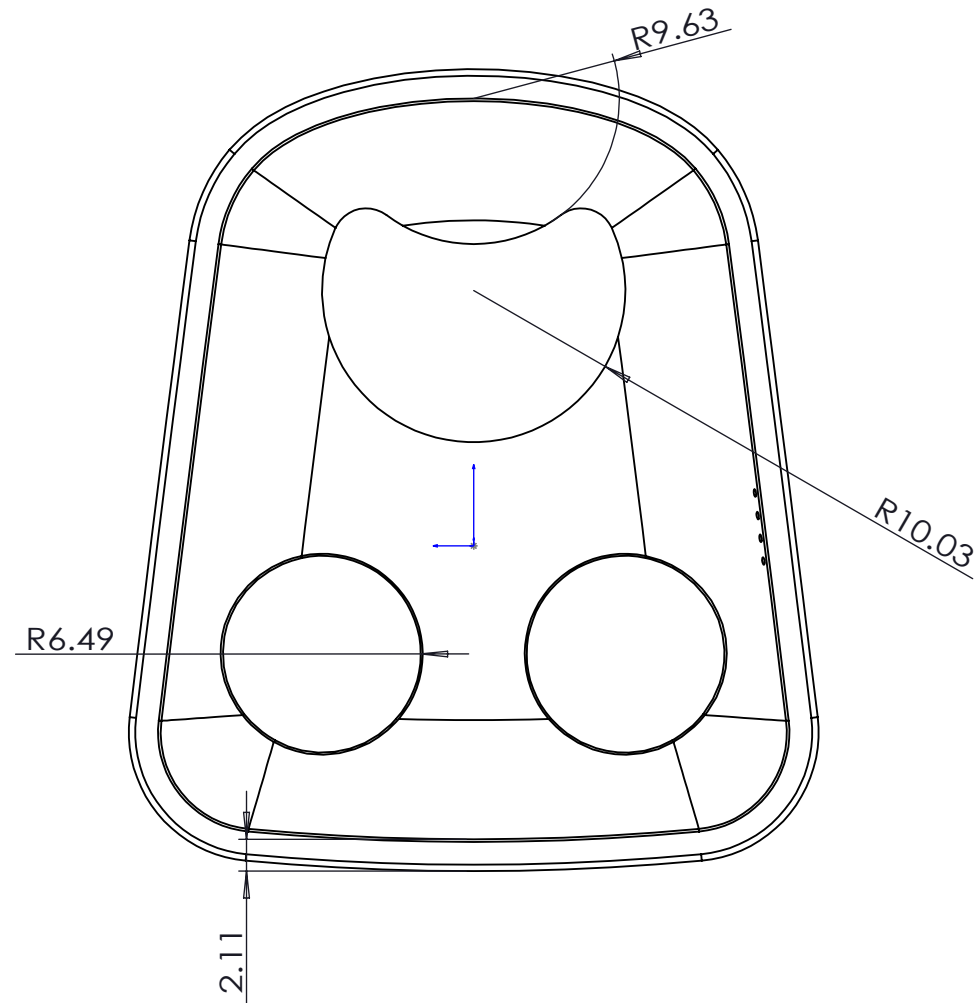


| PART NUMBER | PART NAME                 | MATERIAL      | Finishes (Colour)  | Qty. | MAKE/BUY      | UNIT COST | TOTAL PART COST |
|-------------|---------------------------|---------------|--------------------|------|---------------|-----------|-----------------|
| 1           | Silicon cover             | Silicone      | Matte (Light blue) | 1    | Make          | \$ 0.17   | \$ 0.17         |
| 2           | Button cover              | ABS (Plastic) | Matte (White)      | 2    | Make          | \$ 0.11   | \$ 0.21         |
| 3           | Top body cover            | ABS (Plastic) | Matte (White)      | 1    | Make          | \$ 0.31   | \$ 0.31         |
| 4.1         | PCB board                 | -             | -                  | 1    | Off the shelf | \$ 0.50   | \$ 0.50         |
| 4.2         | Speaker                   | ABS (Plastic) | Black              | 1    | Off the shelf | \$ 0.15   | \$ 0.15         |
| 4.3         | Speaker cover             | Fabric        | Grey               | 1    | Off the shelf | \$ 0.25   | \$ 0.25         |
| 4.4         | SD card holder            | ABS (Plastic) | White              | 1    | Off the shelf | \$ 0.56   | \$ 0.56         |
| 4.5         | Battery                   | -             | -                  | 1    | Off the shelf | \$ 1.01   | \$ 1.01         |
| 5           | Power button cover        | ABS (Plastic) | Matte (White)      | 2    | Make          | \$ 0.14   | \$ 0.28         |
| 6           | Middle component          | ABS (Plastic) | Matte (White)      | 1    | Make          | \$ 0.31   | \$ 0.31         |
| 7           | Magnets                   | -             | -                  | 6    | Off the shelf | \$ 0.02   | \$ 0.09         |
| 8           | Bottom base               | ABS (Plastic) | Matte (White)      | 1    | Make          | \$ 0.28   | \$ 0.28         |
| 9           | Bottom cam lock mechanism | ABS (Plastic) | Matte (White)      | 1    | Make          | \$ 0.13   | \$ 0.13         |
| 10          | Bottom mechanism cover    | ABS (Plastic) | Matte (White)      | 1    | Make          | \$ 0.12   | \$ 0.12         |
| 11          | Screwdriver               | ABS (Plastic) | Matte (Light Blue) | 1    | Make          | \$ 0.41   | \$ 0.41         |
|             |                           |               |                    | 22   |               | TOTAL     | \$ 4.78         |

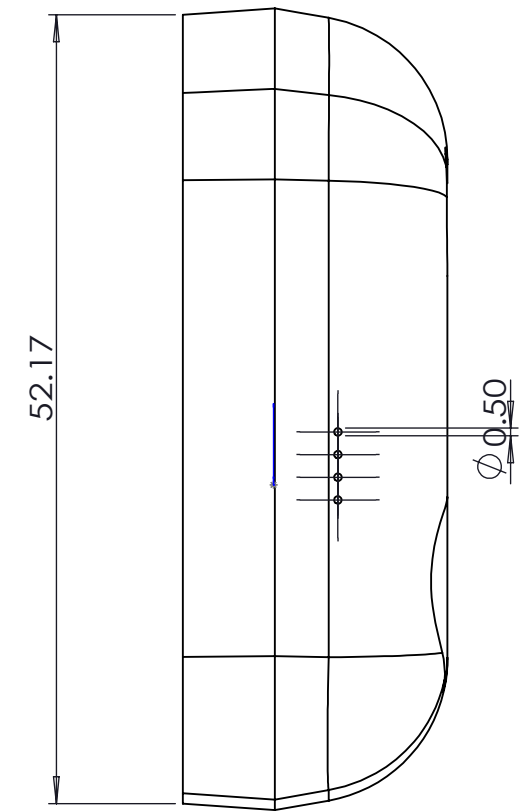
ISOMETRIC VIEW



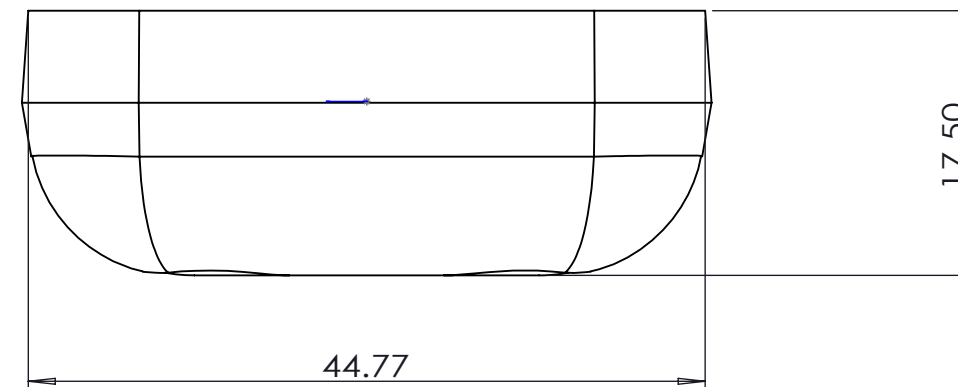
BACK VIEW



LEFT SIDE VIEW

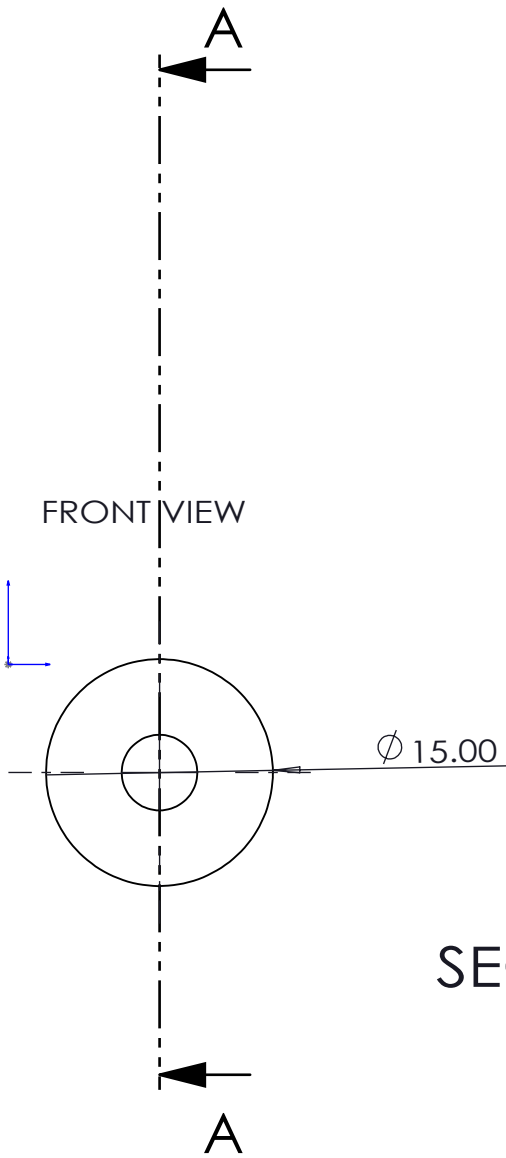
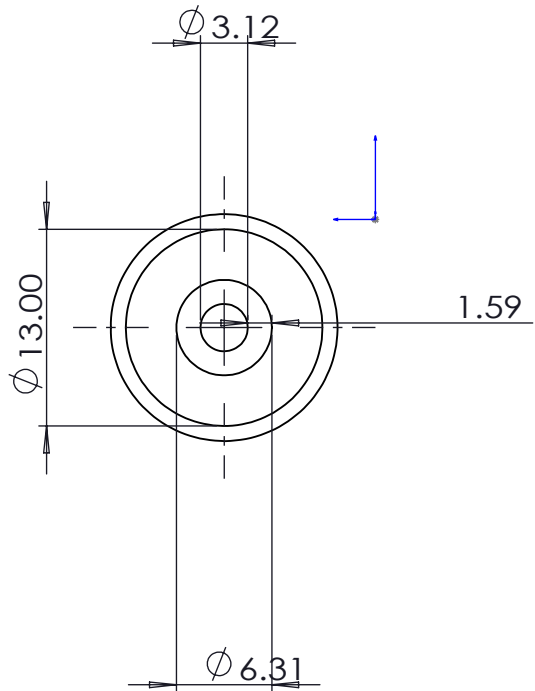
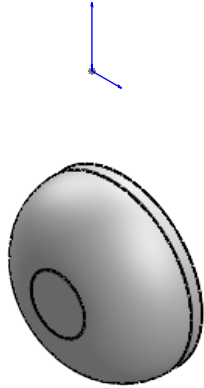


BOTTOM VIEW



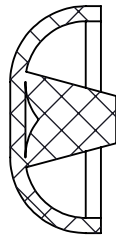
|                             |        |               |                      |  |                    |                                                                                     |     |                 |                      |         |
|-----------------------------|--------|---------------|----------------------|--|--------------------|-------------------------------------------------------------------------------------|-----|-----------------|----------------------|---------|
| TITLE<br><br>Silicone cover |        |               | MATERIAL<br>Silicone |  | DRAWN BY<br>XXK    | GENERAL TOLERANCES<br>0.000 ±0.05<br>0.00 ±0.1<br>0.0 ±0.2<br>0 ±0.5<br>ANGLE ±0.5° | 2:1 | A3              | DO NOT SCALE DRAWING | © XXK   |
|                             |        |               | COLOUR<br>-          |  | DATE<br>29.10.2025 |                                                                                     |     |                 |                      |         |
| PART/ASSY. NUMBER<br>Part 1 | REV. 1 | SHEET 1 OF 11 | FINISH<br>Matte      |  | DRAWING NO.<br>01  |                                                                                     |     | ALL DIMS. IN MM |                      | Ban Ban |

ISOMETRIC VIEW

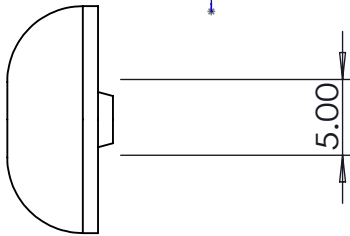


FRONT VIEW

SECTION A-A



RIGHT SIDE VIEW



TITLE  
**Button cover**

PART/ASSY. NUMBER  
**Part 2**

REV. **1**

SHEET **2 OF 11**

MATERIAL  
**ABS(PC)**

COLOUR  
**White**

FINISH  
**Matte**

DRAWN BY  
**XXK**

DATE  
**29.10.2025**

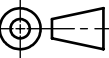
DRAWING NO.  
**01**

GENERAL TOLERANCES  
0.000 ±0.05  
0.00 ±0.1  
0.0 ±0.2  
0 ±0.5  
ANGLE ±0.5°

**2:1**

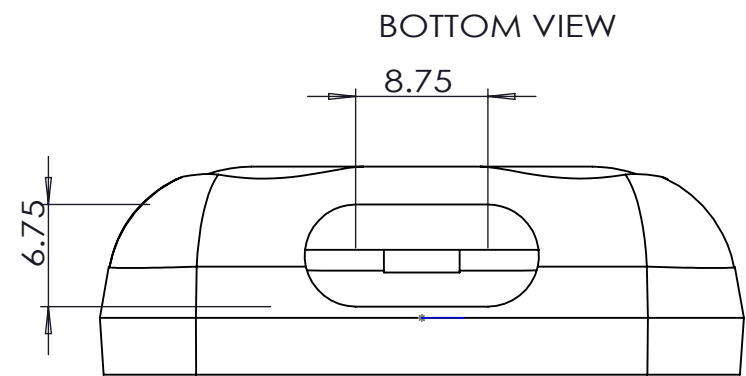
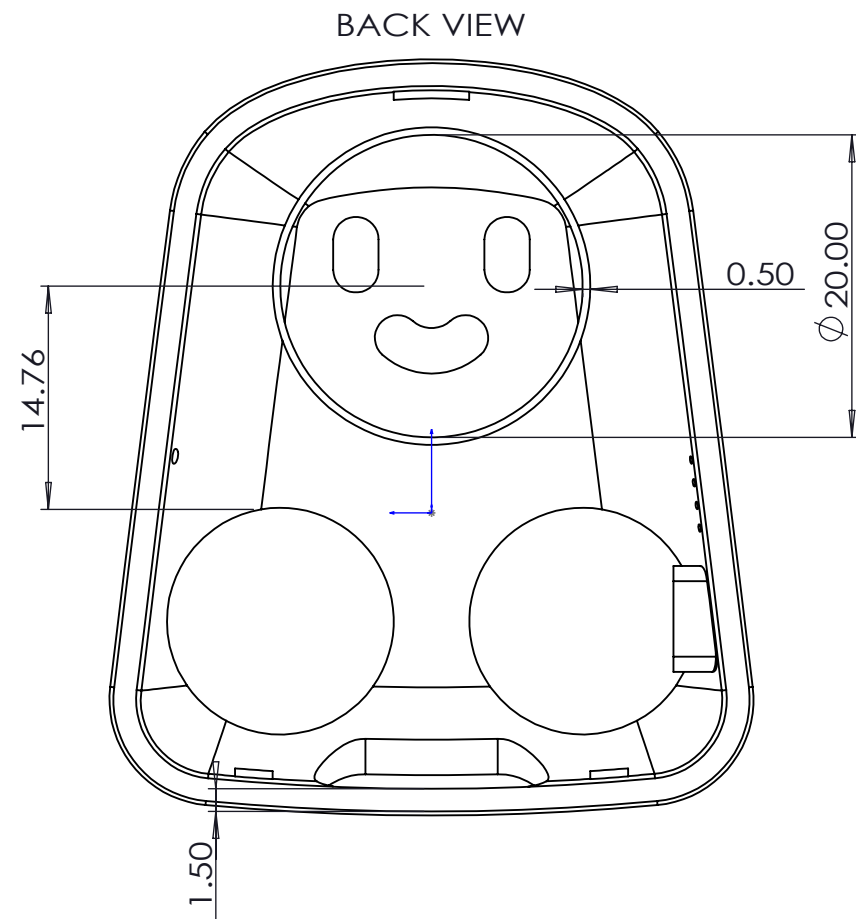
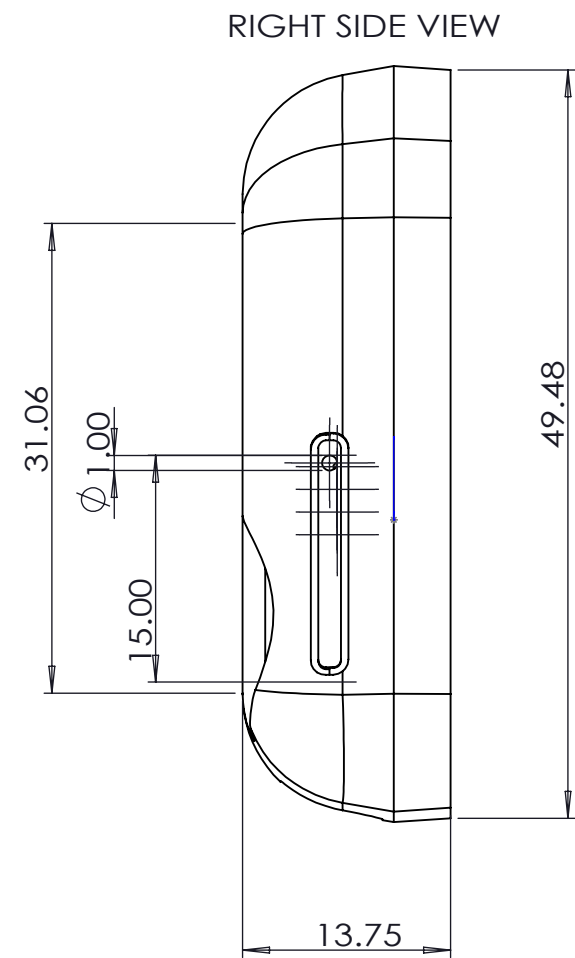
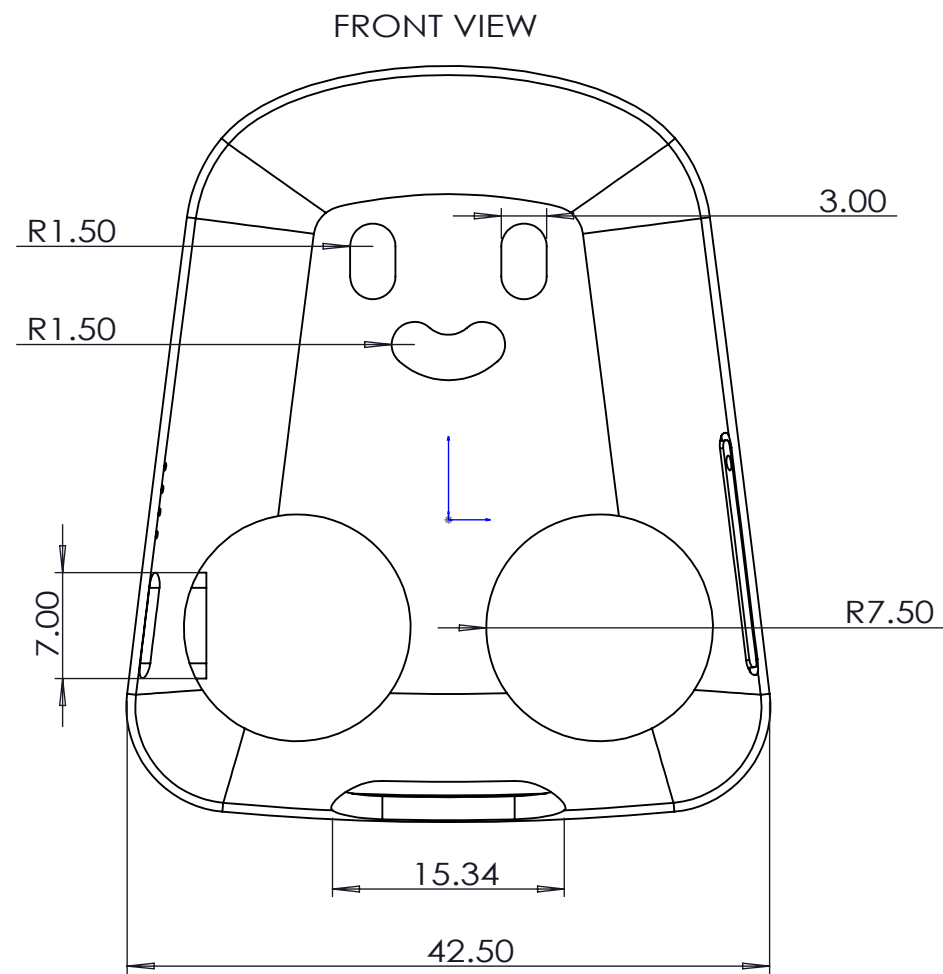
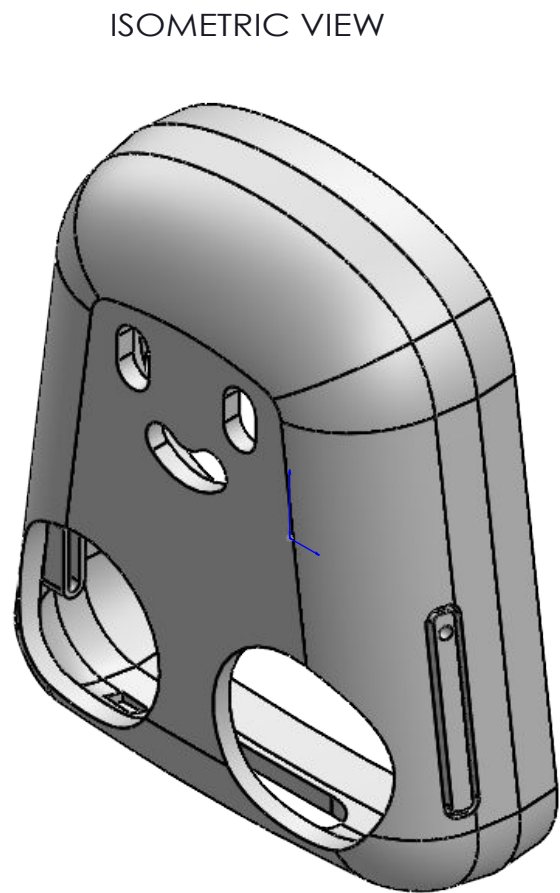
**A3**

DO NOT SCALE DRAWING



© XXK

Ban Ban



TITLE

Top cover

PART/ASSY.  
NUMBER

Part 3

REV. 1

SHEET 3 OF 11

MATERIAL  
ABS (PC)

COLOUR  
White

FINISH  
Matte

DRAWN BY  
XXK

DATE  
29.10.2025

DRAWING NO.  
01

GENERAL  
TOLERANCES  
0.000  $\pm 0.05$   
0.00  $\pm 0.1$   
0.0  $\pm 0.2$   
0  $\pm 0.5$   
ANGLE  $\pm 0.5^\circ$

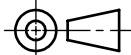
2:1

A3

DO NOT  
SCALE  
DRAWING

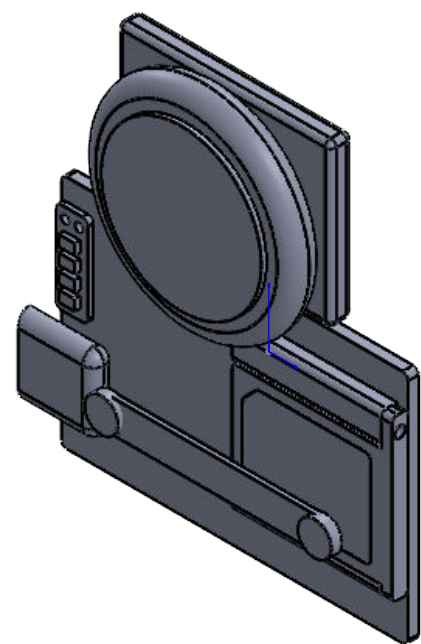
©XXK

ALL DIMS.  
IN MM

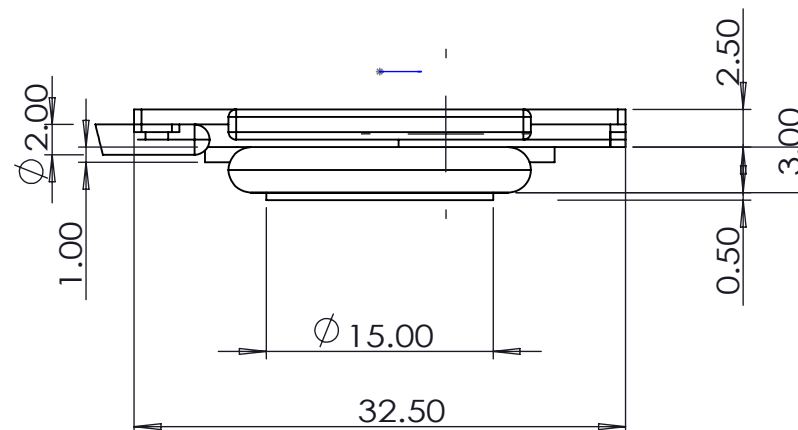


Ban Ban

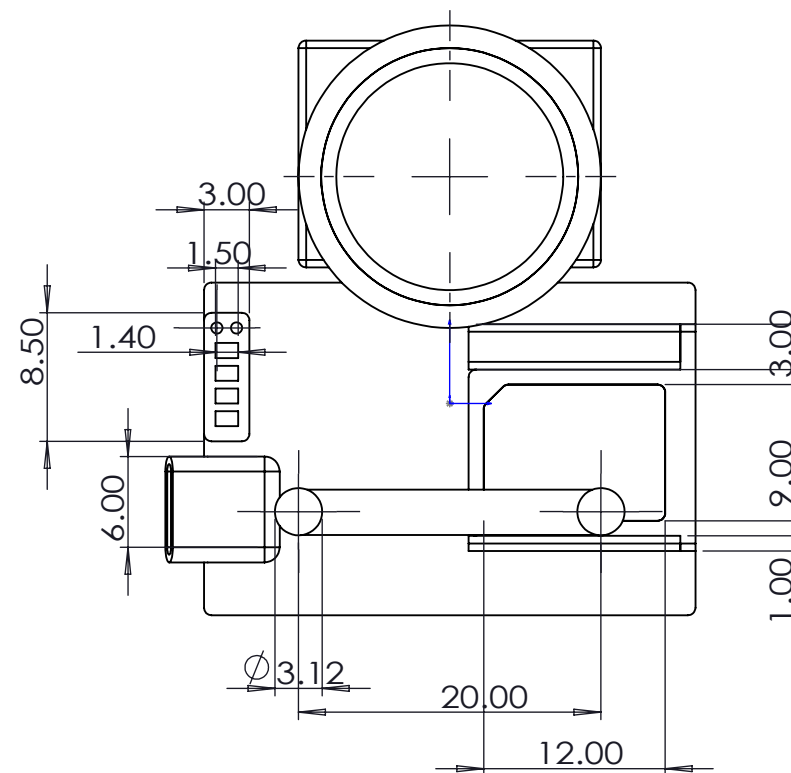
ISOMETRIC VIEW



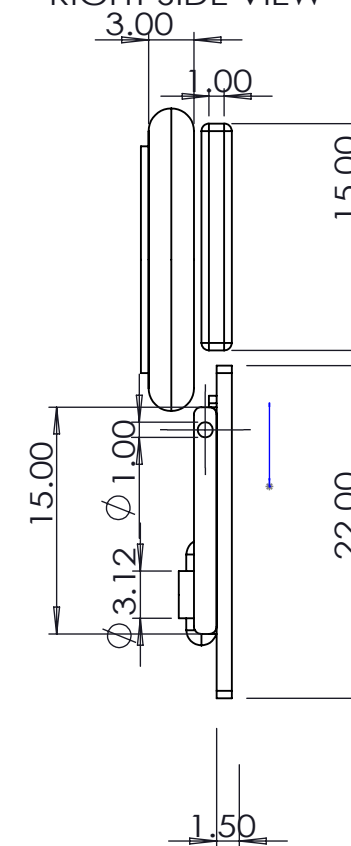
TOP VIEW



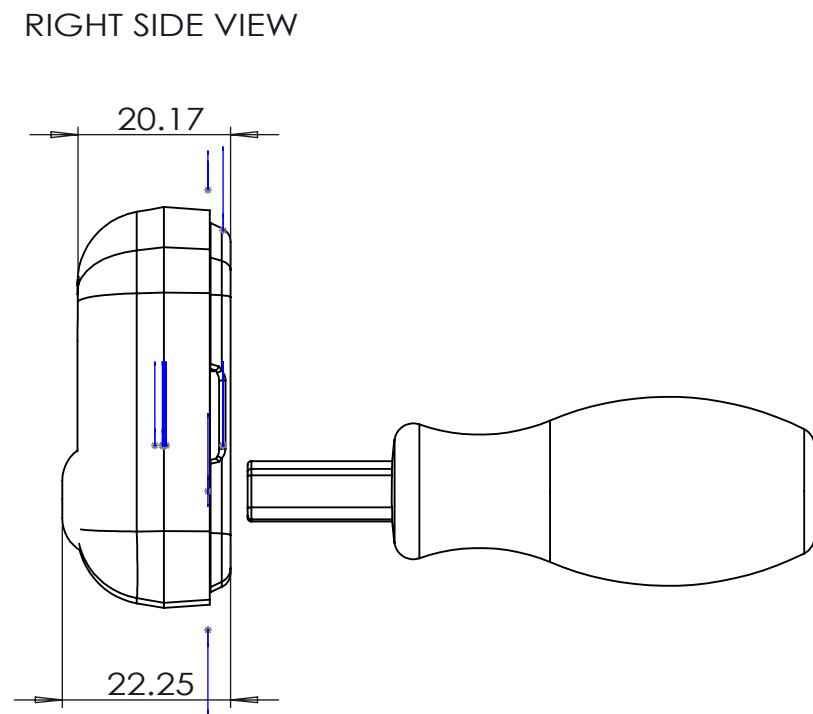
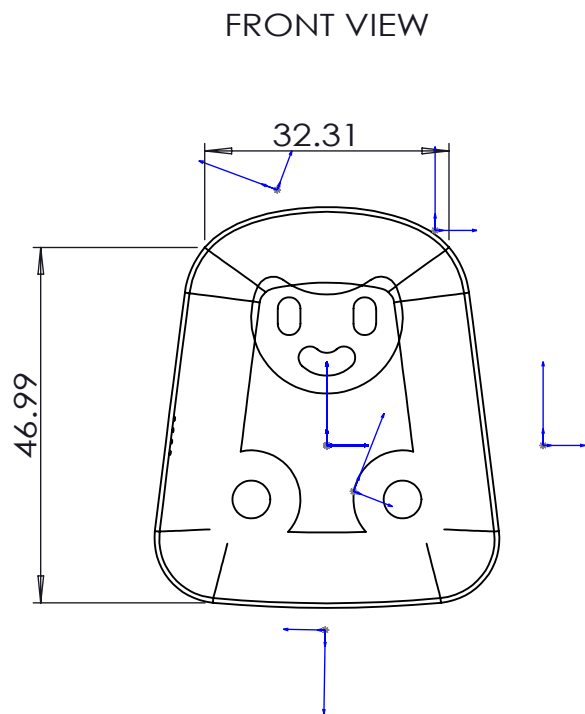
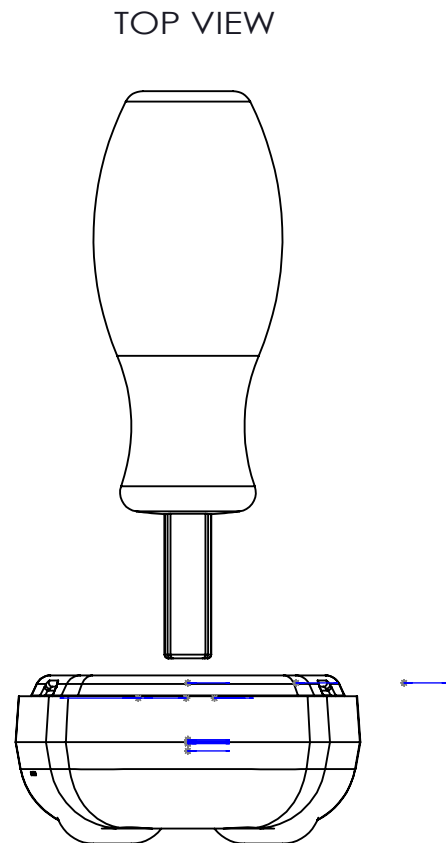
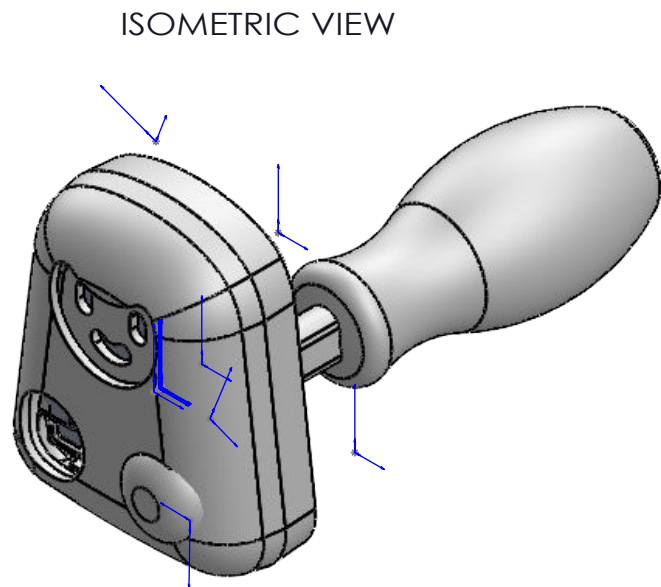
FRONT VIEW



RIGHT SIDE VIEW

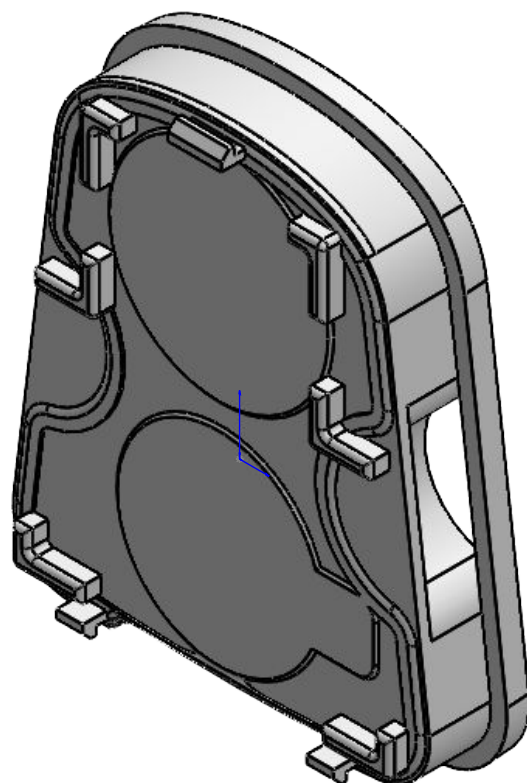


|                             |        |               |
|-----------------------------|--------|---------------|
| TITLE                       |        |               |
| PCB components              |        |               |
| PART/ASSY. NUMBER<br>Part 4 | REV. 1 | SHEET 4 OF 11 |

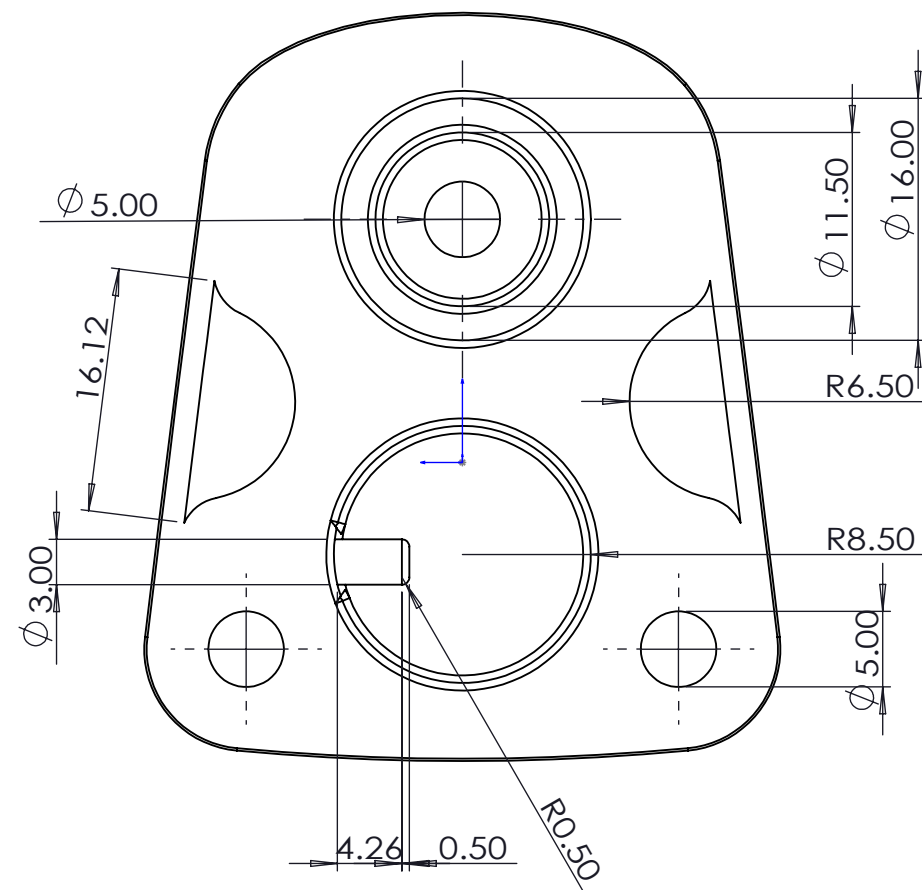


|                                 |        |               |
|---------------------------------|--------|---------------|
| TITLE                           |        |               |
| Assembly                        |        |               |
| PART/ASSY. NUMBER<br>Assembly 1 | REV. 1 | SHEET 5 OF 11 |

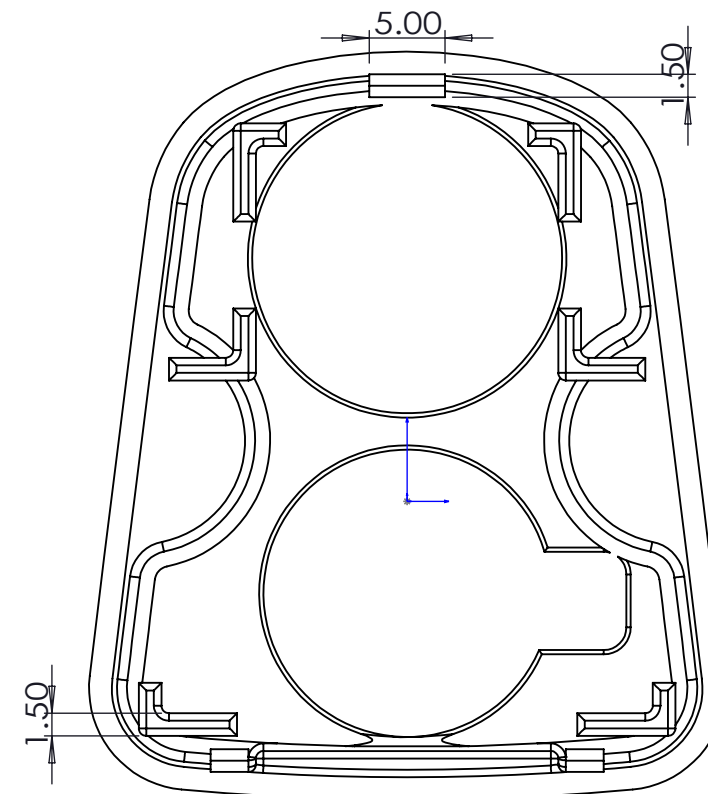
ISOMETRIC VIEW



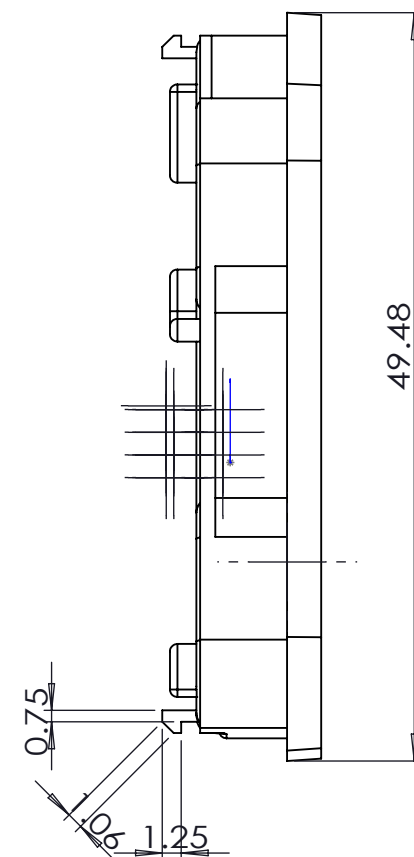
BACK VIEW



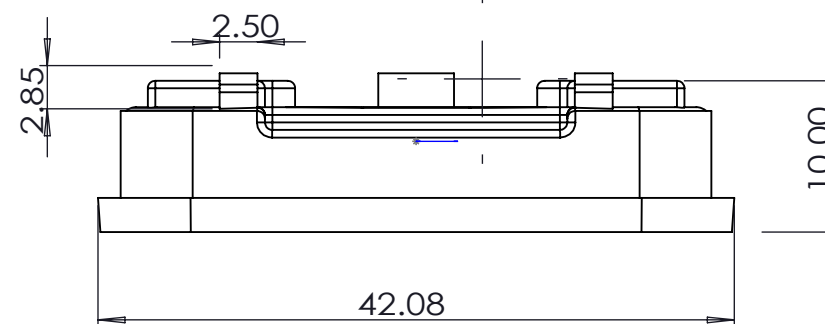
FRONT VIEW



RIGHT SIDE VIEW



BOTTOM VIEW



TITLE

Middle cover

PART/ASSY. NUMBER  
Part 6

REV. 1

SHEET 6 OF 11

MATERIAL  
ABS (PC)

COLOUR  
White

FINISH  
Matte

DRAWN BY  
XXK

DATE  
29.10.2025

DRAWING NO.  
01

GENERAL TOLERANCES  
0.000 ±0.05  
0.00 ±0.1  
0.0 ±0.2  
0 ±0.5  
ANGLE ±0.5°

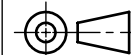
2:1

A3

DO NOT SCALE DRAWING

© XXK

ALL DIMS. IN MM



Ban Ban

A

B

C

D

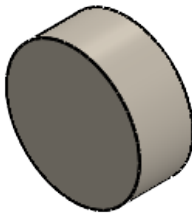
E

F

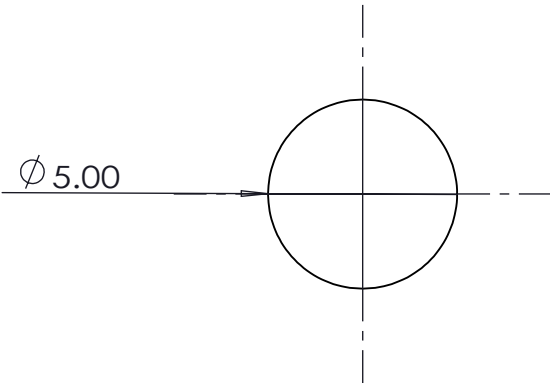
G

H

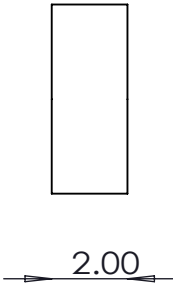
ISOMETRIC VIEW



FRONT VIEW



RIGHT SIDE VIEW



A

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6



TITLE

**Magnet**

PART/ASSY.  
NUMBER

**Part 7**

REV. **1**

SHEET **7 OF 11**

MATERIAL  
**Nickel**

COLOUR

-

FINISH

-

DRAWN BY  
**XXK**

DATE

**29.10.2025**

DRAWING NO.

**01**

GENERAL  
TOLERANCES

0.000 ±0.05

0.00 ±0.1

0.0 ±0.2

0 ±0.5

ANGLE ±0.5°

**5:1**

**A3**

DO NOT  
SCALE  
DRAWING

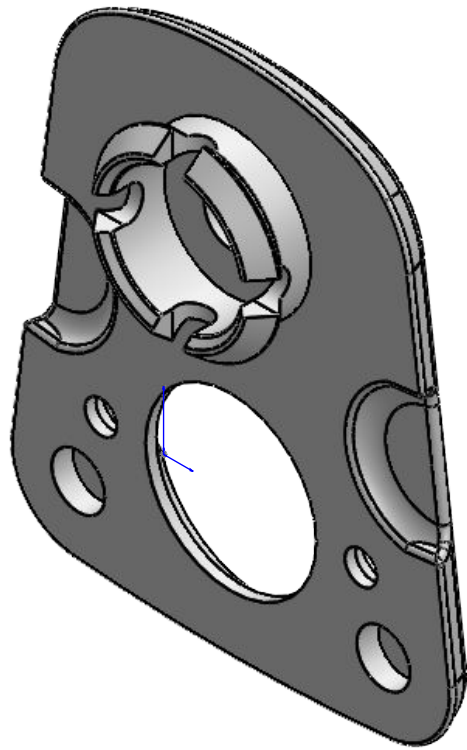
© XXK

ALL DIMS.  
IN MM

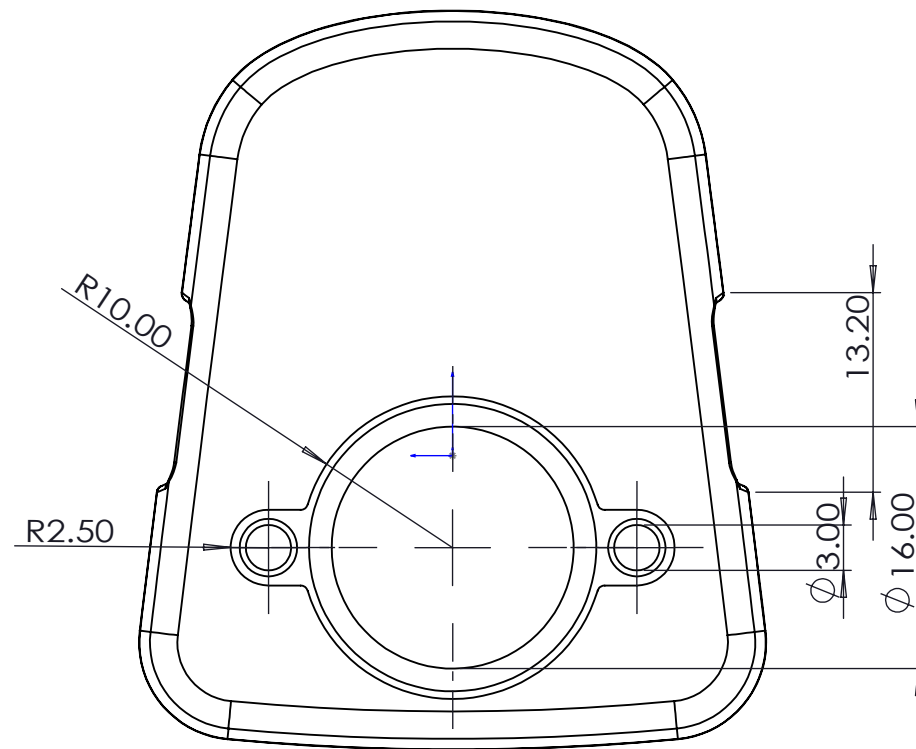


Ban Ban

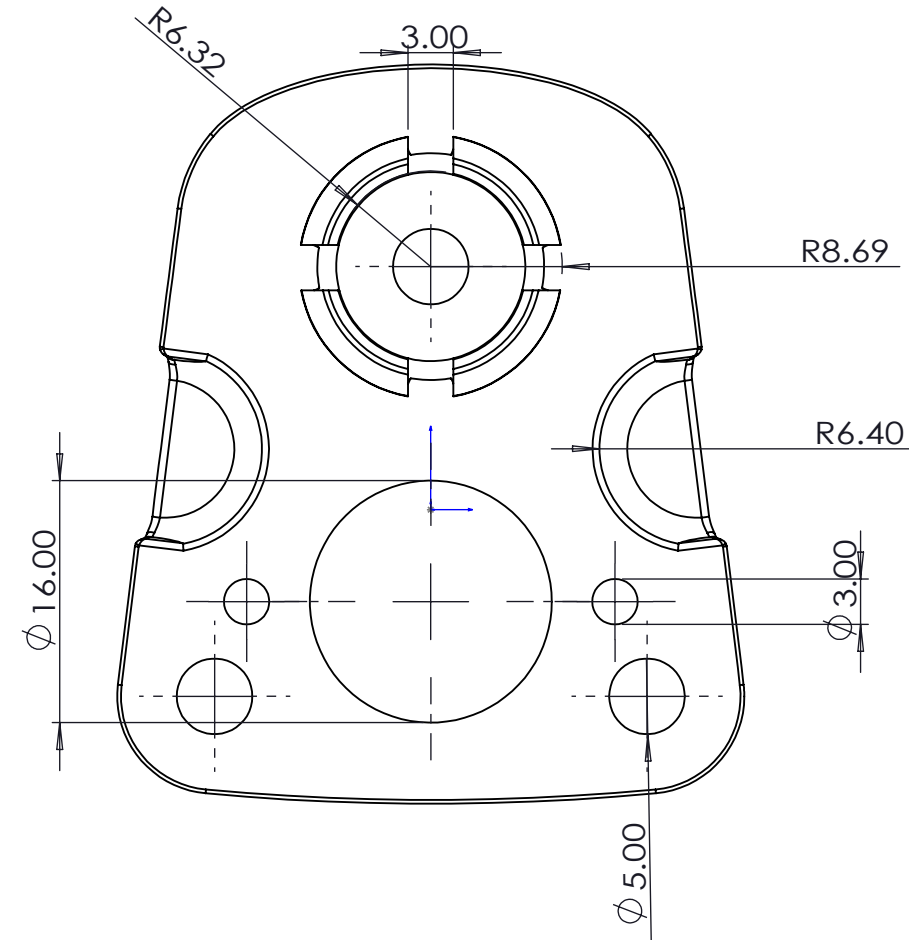
ISOMETRIC VIEW



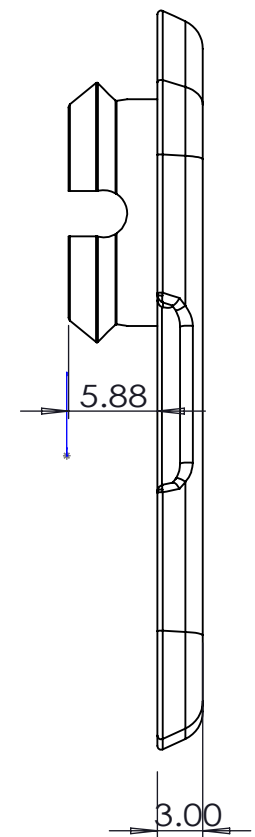
BACK VIEW



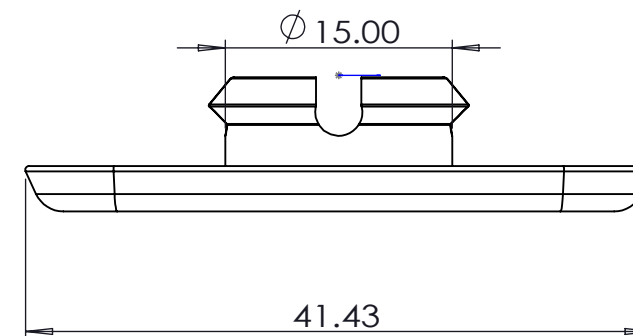
FRONT VIEW



RIGHT SIDE VIEW



BOTTOM VIEW

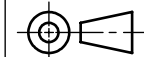


TITLE

**Bottom cover**PART/ASSY. NUMBER  
**Part 8**REV. **1**SHEET **8 OF 11**MATERIAL  
**ABS(PC)**COLOUR  
**White**FINISH  
**Matte**DRAWN BY  
**XXK**DATE  
**29.10.2025**DRAWING NO.  
**01**

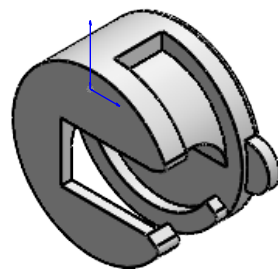
GENERAL  
TOLERANCES

|                       |            |
|-----------------------|------------|
| 0.000                 | $\pm 0.05$ |
| 0.00                  | $\pm 0.1$  |
| 0.0                   | $\pm 0.2$  |
| 0                     | $\pm 0.5$  |
| ANGLE $\pm 0.5^\circ$ |            |

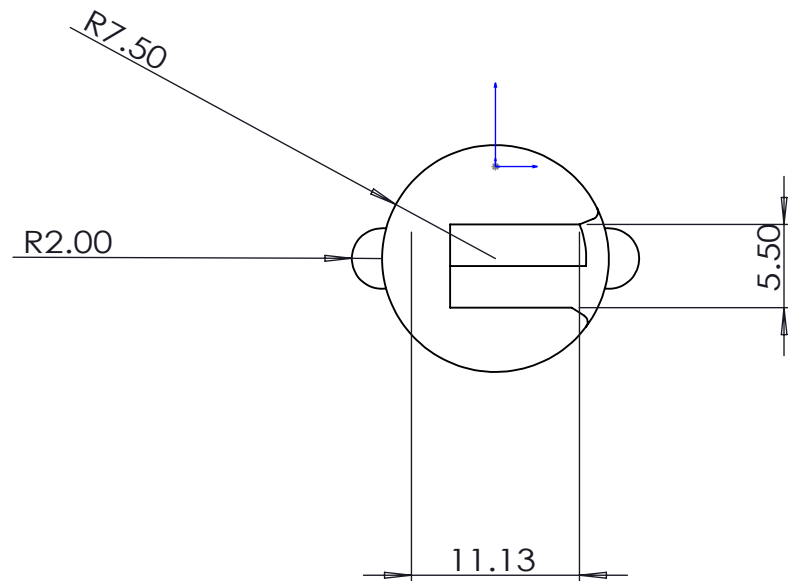
**2:1****A3**DO NOT  
SCALE  
DRAWING© **XXK**ALL DIMS.  
IN MM

Ban Ban

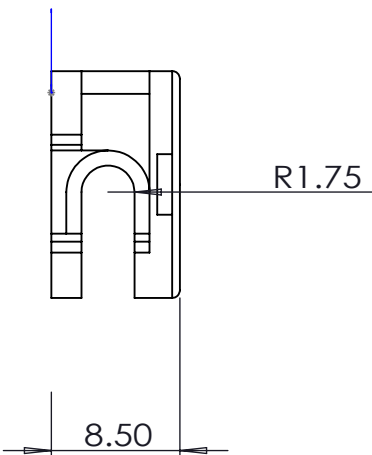
ISOMETRIC VIEW



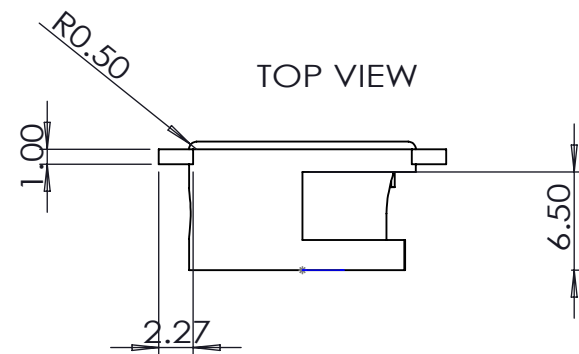
FRONT VIEW



RIGHT SIDE VIEW



TOP VIEW



TITLE

Bottom mechanism

PART/ASSY. NUMBER

Part 9

REV. 1

SHEET 9 OF 11

MATERIAL  
ABS(PC)

COLOUR  
White

FINISH  
Matte

DRAWN BY  
XXK

DATE  
29.10.2025

DRAWING NO.  
01

GENERAL  
TOLERANCES  
0.000 ±0.05  
0.00 ±0.1  
0.0 ±0.2  
0 ±0.5  
ANGLE ±0.5°

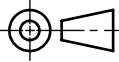
2:1

A3

DO NOT  
SCALE  
DRAWING

© XXK

ALL DIMS.  
IN MM



Ban Ban

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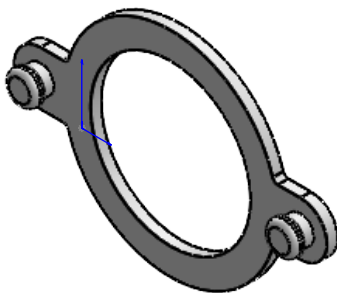
3

4

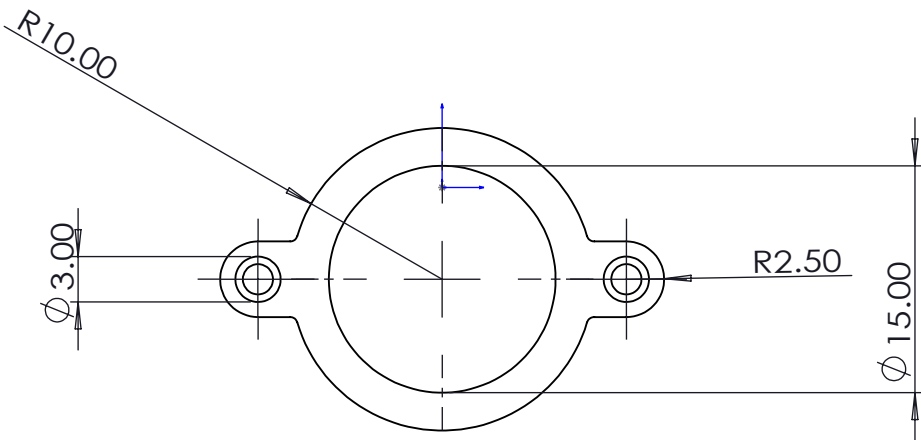
5

6

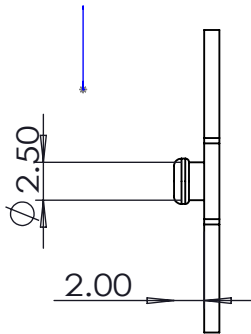
ISOMETRIC VIEW



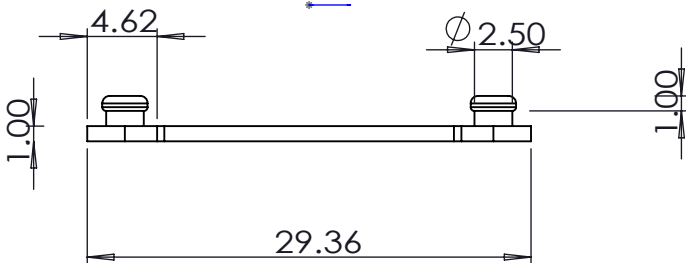
FRONT VIEW



RIGHT SIDE VIEW



TOP VIEW



TITLE

Bottom mechanism cover

PART/ASSY. NUMBER  
Part 10

REV. 1

SHEET 10 OF 11

MATERIAL  
ABS(PC)

COLOUR  
White

FINISH  
Matte

DRAWN BY  
XXK

DATE  
29.10.2025

DRAWING NO.  
01

GENERAL  
TOLERANCES  
0.000 ±0.05  
0.00 ±0.1  
0.0 ±0.2  
0 ±0.5  
ANGLE ±0.5°

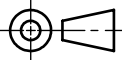
2:1

A3

DO NOT  
SCALE  
DRAWING

© XXK

ALL DIMS.  
IN MM



Ban Ban

1

2

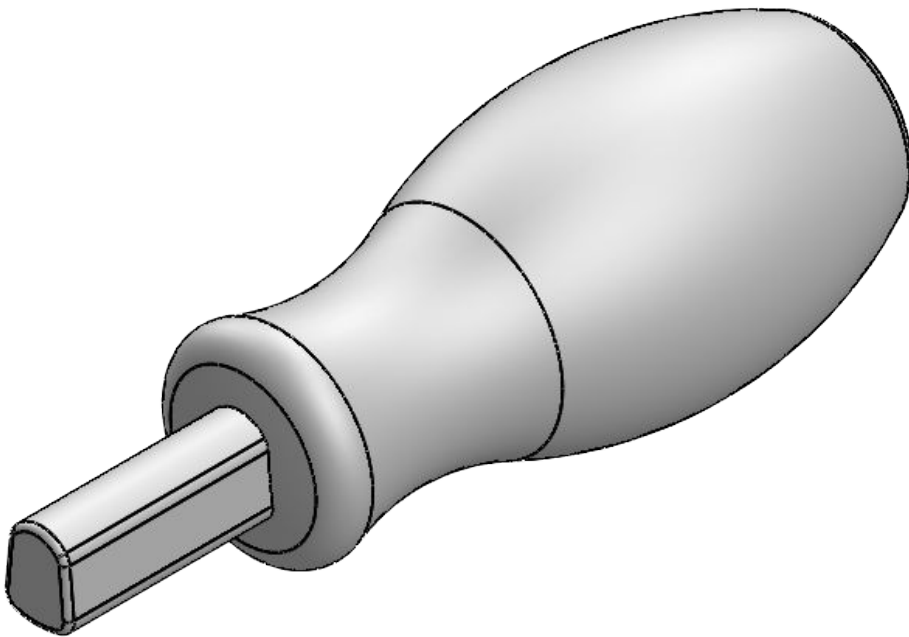
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4

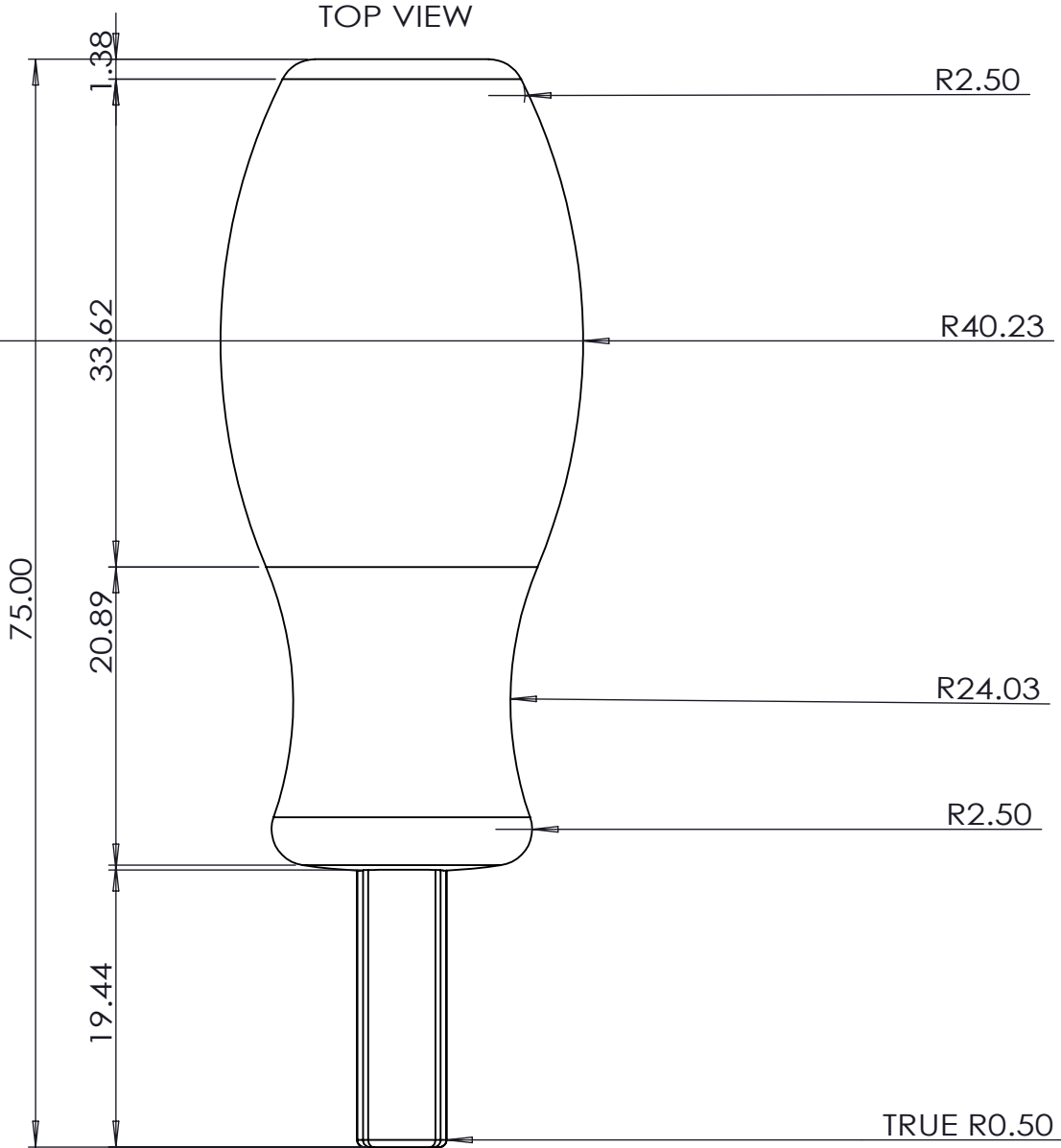
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6

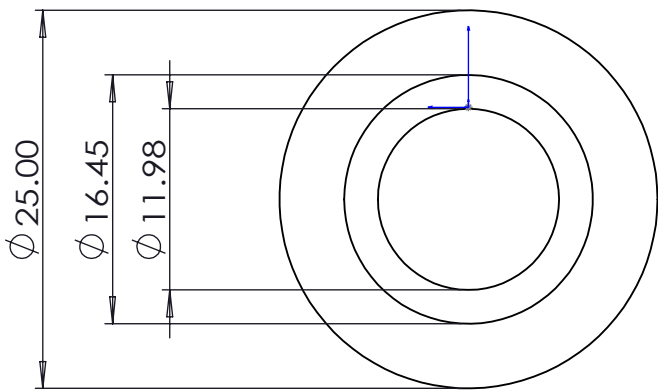
ISOMETRIC VIEW



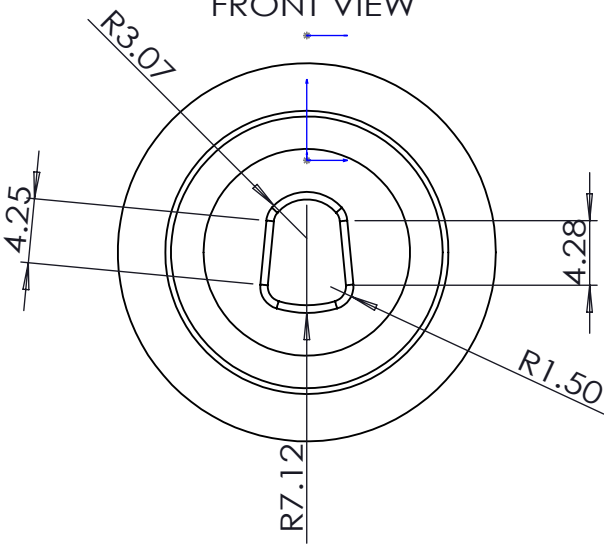
TOP VIEW



BACK VIEW



FRONT VIEW



TITLE

**Screw driver**

PART/ASSY. NUMBER **Part 11**

REV. **1**

SHEET **11 OF 11**

MATERIAL  
**ABS (PC)**

COLOUR  
**White**

FINISH  
**Matte**

DRAWN BY  
**XXK**

DATE  
**29.10.2025**

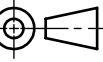
DRAWING NO.  
**01**

GENERAL  
TOLERANCES  
0.000  $\pm 0.05$   
0.00  $\pm 0.1$   
0.0  $\pm 0.2$   
0  $\pm 0.5$   
ANGLE  $\pm 0.5^\circ$

**2:1**

**A3**

DO NOT  
SCALE  
DRAWING



© **XXK**

ALL DIMS.  
IN MM

Ban Ban