# Winch

Scale one to four model

Scale model of a wooden winch, used for baroque machinery experiments and demonstrations. A winch is used to lift or move objects or counter weights. It is mostly used in the preparation phase of a changeover. The model can be built in a basic, but well equipped workshop.

## Content

# Winch

## Materials list

| Circles | | | | | |
|---|---|---|---|---|---|
| Number | Type | thickness | diameter | center hole | remark |
| 2 | Cirkel | 15 mm | 80mm | 8mm | |

| Slats | | | | | |
|---|---|---|---|---|---|
| Number | Type | thickness | width | lenght | |
| 2 | slat with grove | 15 mm | 100 mm | 375 mm | grove see drawing |
| 2 | slat | 15 mm | 30 mm | 375 mm | |
| 16 | slat | 15 mm | 15 mm | 325 mm | |

| Other | | | | | |
|---|---|---|---|---|---|
| Number | Type | Thickness | | center hole | |
| 2 | disk with handels | 15 mm | | 8mm | see drawing for details |
| 2 | feet frames | 15 mm | | | see drawing for details |

| Other materials | |
|---|---|
| 405 mm | threaded rod M8 |
| 2 pc. | nut 8 M8 |
| 2 pc. | washer 8 mm |
| 2 pc. | head nut M8 |
| 6 | screw 3.5 x 20 mm |

**Notes:**

The different parts can be cut out of one 15 mm multiplex plate.

The slats (15 mm x 15 mm) can be cut out of leftover material.

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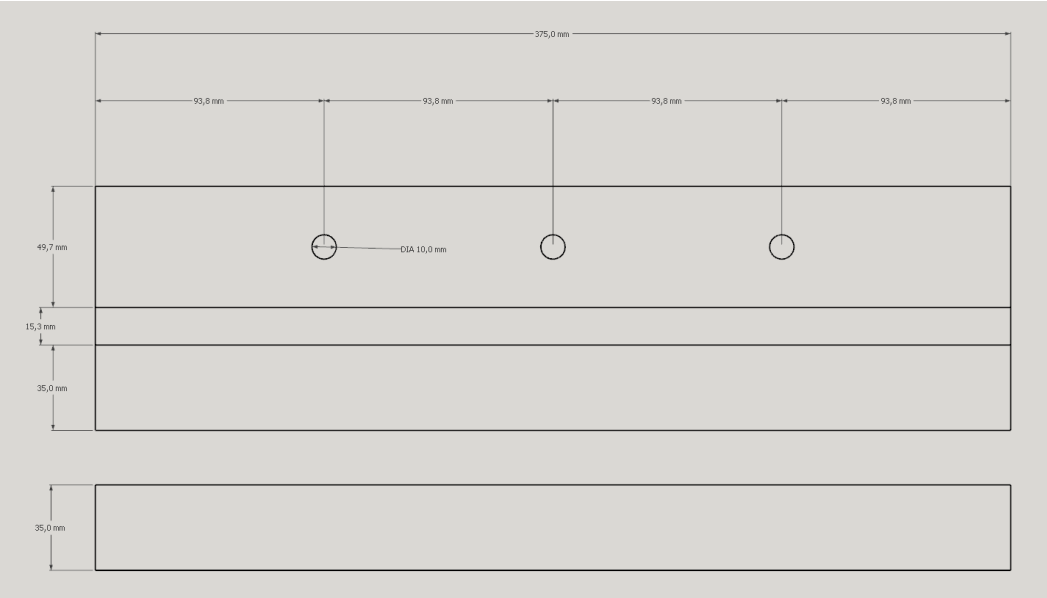
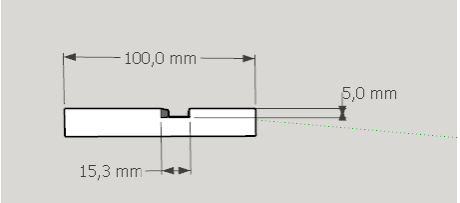
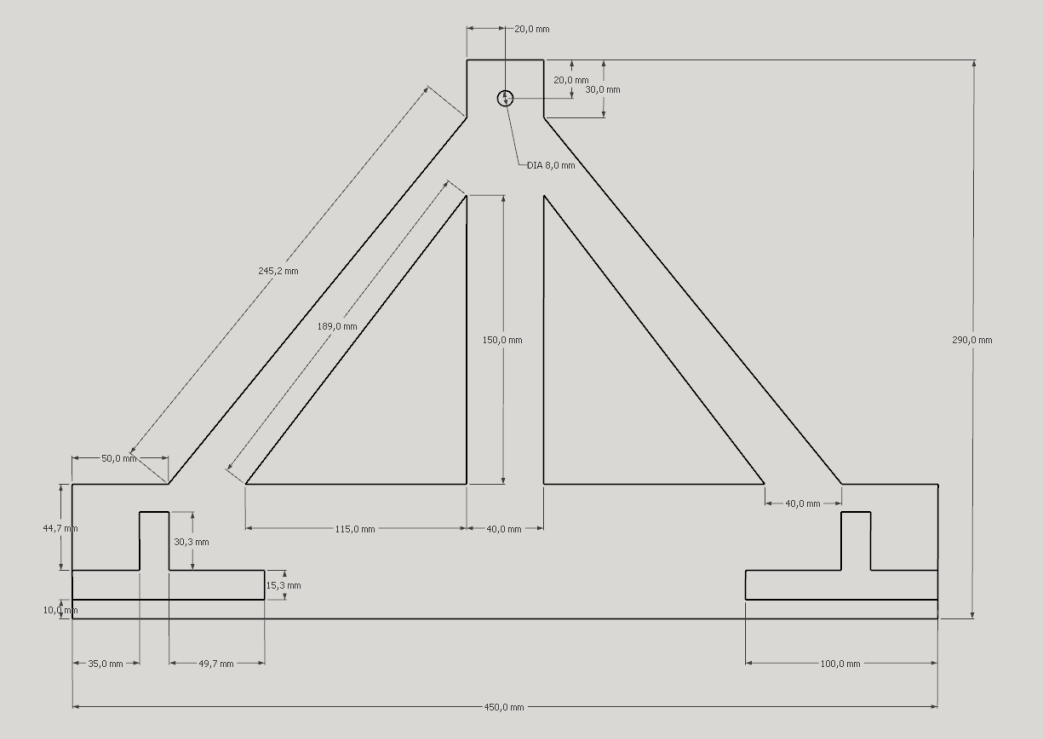
## Detail drawings




(all grooves are 5 mm)




| | | | |
|---|---|---|---|
| Canon THEATRE TECHNICAL HISTORY | Winch | Drawing by: Beno Van Goethem | |
| Canon Tools | Construction drawing | Version: 02.01 | Version date: 20/12/2022 |

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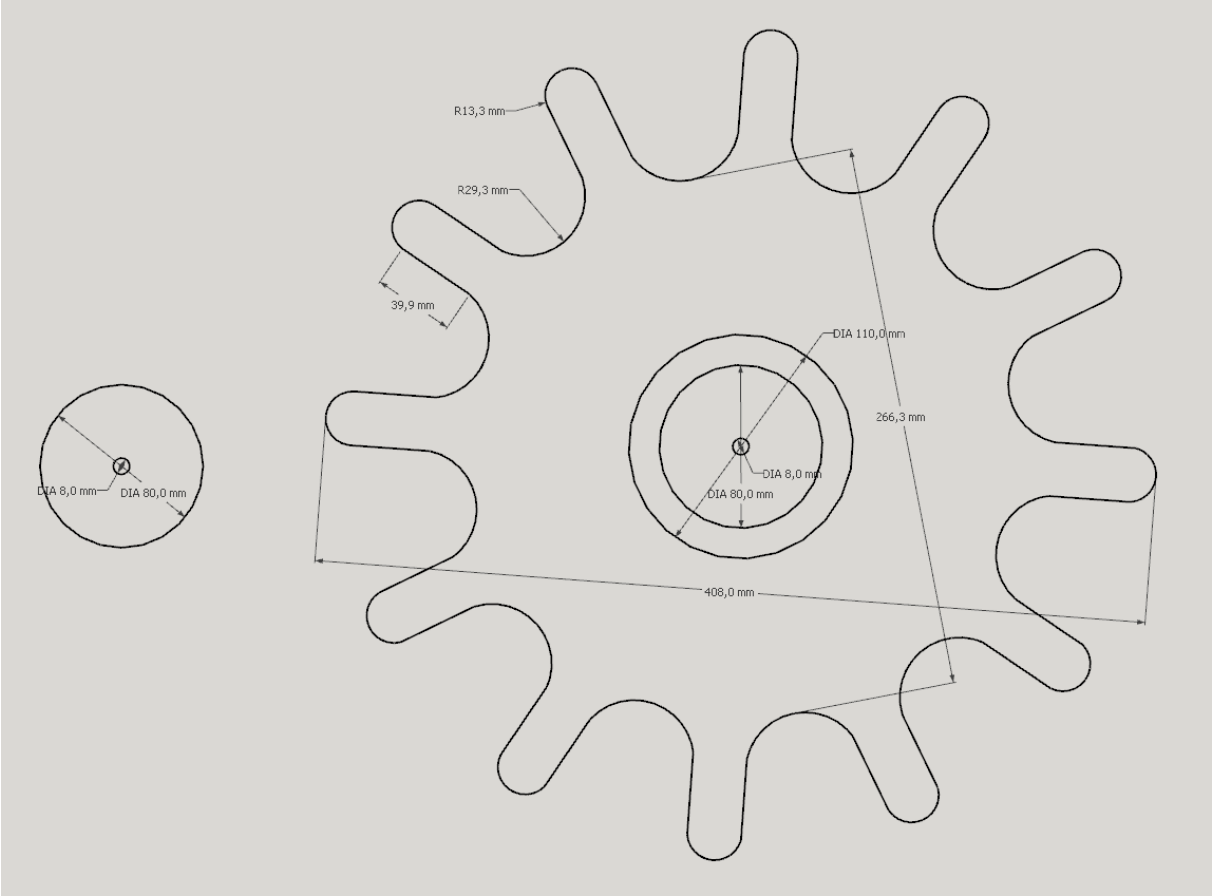


(all grooves are 5 mm)

| | | | |
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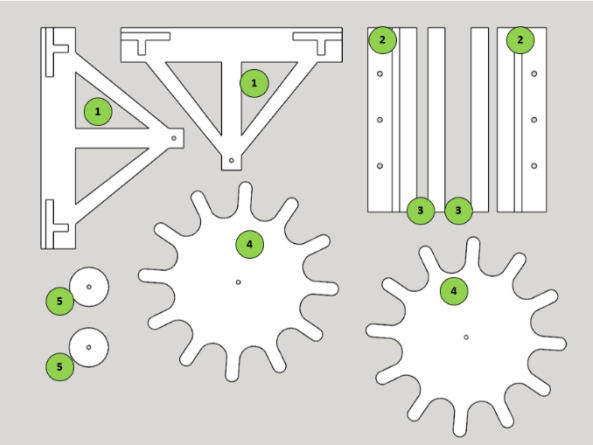
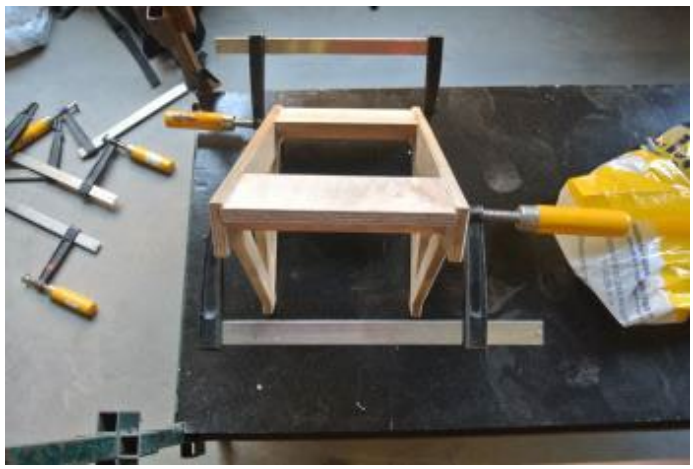
## Construction

1. Cut all the parts to size. This can be done by CNC or hand in a good workshop.




2. Make sure all milled out areas are dust-free.
3. The straight milled out grooves are not perfectly straight in the corners, take a breaker knife and remove the remaining obstacles in the corners of these grooves.
4. Glue board 3 into the milled-out slot of board 2. Do this 2 times
5. You now have a combined board of board 2 and board 3. Now glue this in the recessed slot on board 1, do this on both sides of boards 2 and 3.
6. Glue now the last board 1 to the other side of the composite boards 1and 2.
7. Put 2 clamps on the glued section and let it dry for a few hours. If you don't have glue clamps make sure you put at least 5kg/cm of pressure on the glued parts.
8. The basic structure is now ready.



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9. Glue board 5 on the milled-out part of board 4. To make these fit perfectly, you can use a bolt M8 and put this through 5 and 4 so that they are fixed.
10. Take all sawn slats 6 of 15mm x 15mm x 325mm.
11. Glue these batten drums into the groove of combined board 4 and 5, as shown in Figure 24.
12. When the circle is completely full, take paper tape and tape around the batten so that it is secured and cannot fall out.
13. Now you can glue the last combined board 4 and 5 to the other side of the slats.
14. Clamp this like the basic structure and let it dry for a few hours.

15. Now take a 405 mm threaded rod
16. Put the threaded rod through the first hole of the base structure. Put a nut between the base structure and the drum with a washer between the nut and the base structure. Continue turning until you are through the drum. Put another nut and washer between the drum and the base structure. Now keep turning the nuts to get the threaded rod through the last hole. Once you are through all the holes, you can now secure everything with a head nut on each side.
17. Your winch is now ready

## Credits

The drawings and construction method are based on the Final work of Rens Plankaert, RITCS 2014.

The drawings are remade, updated and transformed in 3D Sketchup by Beno van Goethem.

Translation, text and lay-out is done by Chris Van Goethem, RITCS.