WorkBee CNC
Full Kit Assembly Instructions
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1.0 Getting Started
**Check Product Contents**

When you receive your kit, the first thing you should do is check the contents against the list in Appendix A. The majority of the parts will be separated into boxes that correspond to the subsections in this manual. Additional spare small parts will be included. If anything is missing or damaged (or if you have any other problems) please contact us at sales@ooznest.co.uk and we will aim to resolve the issue as quickly as possible.

**1.1 Notes on Assembly**

This manual has been written for the construction of a 750 x 750mm screw driven version of the WorkBee. If you have a different version everything is exactly the same, with the exception of longer V-Slot extrusions and wire routing.

It is recommended that you read through the whole manual before beginning the build in order to get a full picture of the assembly process. Before beginning each step, make sure you have studied the diagram and have the required parts in front of you. A PDF version of the manual is available on our website and this will allow you to zoom in on the diagrams if needed.

Be very careful to not over tighten the nuts and bolts on the plastic parts, otherwise they may crack. Everything should easily fit together, and so if it isn’t, take a step back and re-read the instructions.
2.0 Drag Chains Assembly
2.1 Y-Axis

2.1.1 Y-Axis Fixed End Assembly

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<tr>
<th>ITEM NO</th>
<th>DESCRIPTION</th>
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<tr>
<td>1</td>
<td>Y-DRAG-CHAIN-FIXED-END-MOUNT</td>
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<tr>
<td>2</td>
<td>DRAG-CHAIN-FIXED-END</td>
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</tr>
<tr>
<td>3</td>
<td>M5-LOW-PROFILE-15MM</td>
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</tr>
<tr>
<td>4</td>
<td>M5-nyloc-nut</td>
<td>3</td>
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</tbody>
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A. Attach a Drag-Chain-Fixed-End to the Y-Drag-Chain-Fixed-End-Mount in the orientation shown above, using 3 x M5-Low-Profile-15mm bolts and 3 x M5-Nyloc-Nut’s.
2.1.2 Y-Axis Fixed End Mounting

A. Position the Y-Axis-Fixed-End-Assembly to the back left corner of the WorkBee. It should be flush with the end of the C-Beam-750mm. Secure it using 2 x M5-Low-Profile-25mm bolts and 2 x M5-Drop-In-Tee-Nuts.
### 2.1.3 Y-Axis Moving End Assembly

**A.** Insert 2 x M5-Nyloc-Nuts into the insets on the Y-Drag-Chain-Moving-End-Mount. They are a snug fit, so may require a light tap with a hammer.

**B.** Attach a Drag-Chain-Moving-End to the Y-Drag-Chain-Moving-End-Mount in the orientation shown above using 3 x M5-Low-Profile-15mm bolts and 3 x M5-Nyloc-Nuts.
2.1.4 Y-Axis Moving End Mounting

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<td>Y-AXIS-MOVING-END-ASSEMBLY</td>
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<tr>
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<td>M5-LOW-PROFILE-20MM</td>
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A. Secure the Y-Axis-Moving-End-Assembly using 2 x M5-Low-Profile-20mm bolts and the 2 x M5-Nyloc-Nuts already inserted into Y-Drag-Chain-Moving-End-Mount.
A. Lay the Y-Drag-Chain flat on a table. Feed the PSU-Output-Power-Cable through the whole length of the Y-Drag-Chain. Ensure that the end with the XT60-Connector, is located at the female end of the Y-Drag-Chain (as shown above in the ‘Female End’ image).

B. If you have a screw driven WorkBee feed the two Y-Axis motor wires through the Y-Drag-Chain. The end of the stepper motor wires with the black connector should be at the female end of the Y-Drain-Chain - same as Step A. Ignore this step if you have any other WorkBee drive variant.

C. For all WorkBee Variants, feed the wires on the Y-Axis Limit-Switch, through the Y-Drag-Chain. The switch portion of the Limit-Switch should be at the female end of the Y-Drag-Chain.

D. Lay the Y-Drag-Chain flat along the left side of the WorkBee. The female end of the Y-Drag-Chain should be at the back of the machine, and the male end at the front.

E. Attach the female end of the Y-Drag-Chain to the Drag-Chain-Fixed-End on the Y-Axis-Fixed-End-Assembly. It will take some force to click it into the Drag-Chain-Fixed-End.

F. Bring the male end of the Y-Drag-Chain to the Y-Axis-Moving-End-Assembly and attach it to the Drag-Chain-Moving-End. It will take some force to click it into the Drag-Chain-Moving-End.
### 2.2 X-Axis

#### 2.2.1 X-Axis Fixed End Mounting

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<td>DRAG-CHAIN-FIXED-END</td>
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<td>2</td>
<td>M5-LOW-PROFILE-8MM</td>
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<td>M5-DROP-IN-TEE-NUT</td>
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A. Attach a Drag-Chain-Fixed-End to the V-Slot-2040-750mm using an M5-Low-Profile-8mm and an M5-Drop-In-Tee-Nut. Ensure it is orientated as above; it should be located 150mm from right hand end of the V-Slot-2040-750mm if looking from the back. Ensure that it is parallel with the V-Slot-2040-750mm.
2.2.2 X-Axis Moving End Assembly

A. Attach a Drag-Chain-Moving-End to the X-Drag-Chain-Moving-End-Mount in the orientation shown above using 3 x M5-Low-Profile-15mm bolts and 3 x M5-Nyloc-Nuts.

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<tr>
<td>2</td>
<td>DRAG-CHAIN-MOVING-END</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>M5-LOW-PROFILE-15MM</td>
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<tr>
<td>4</td>
<td>M5-NYLOC-NUT</td>
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2.2.3 X-Axis Moving End Mounting

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<td>X-AXIS-MOVING-END-ASSEMBLY</td>
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<tr>
<td>2</td>
<td>M5-LOW-PROFILE-55MM</td>
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<tr>
<td>3</td>
<td>M5-NYLOC-NUT</td>
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A. Secure the X-Axis-Moving-End-Assembly to the X-Plate-Back using 2 x M5-Low-Profile-55mm bolts and 2 x M5-Nyloc-Nuts.
2.2.4 X-Drag-Chain

A. Like in Section 2.1.5 lay the X-Drag-Chain flat on a table. If you have a screw driven WorkBee feed through the Z-Axis stepper motor wire. If you have a belt driven WorkBee feed through the X-Axis and Z-Axis motor wires. The end of the stepper motor wires with the black connectors should be at the male end of the X-Drag-Chain (opposite to Section 2.1.5).

B. Attach the female end of the X-Drag-Chain to the Drag-Chain-Fixed-End on the V-Slot-2040-750mm. It will take some force to click it into the Drag-Chain-Fixed-End.

C. Bring the male end of the X-Drag-Chain up to the X-Axis-Moving-End-Assembly and attach it to the Drag-Chain-Moving-End. It will take some force to click it into the Drag-Chain-Moving-End.
3.0 Appendix
3.1 Appendix A - Kit Contents

**Drag Chains Assembly**

1 x X-Drag-Chain
1 x Y-Drag-Chain

2 x Drag-Chain-Fixed-End

2 x Drag-Chain-Moving-End

1 x X-Drag-Chain-Moving-End-Mount

1 x Y-Drag-Chain-Fixed-End-Mount

1 x Y-Drag-Chain-Moving-End-Mount

M5-Low-Profile:
1 x 8mm
9 x 15mm
2 x 20mm
2 x 25mm
2 x 55mm

13 x M5-Nyloc-Nut
3 x M5-Drop-In-Tee-Nut

Cable-Tie:
25 x Small
25 x Large