

## Gantry Crane

Material Used

Tubing 50 \* 38 \* 3mm

Angle Iron 25 \* 25 \* 3mm

C Profile 75mm \* 38mm \* 6mm

Gate Wheels (8)

Raw Bolts (12mm)

Nuts and bolts (10mm)

I started off by making the pillars where the C profile (runway beam) will attach to, to support the bridge frame. All parts, the pillars and C profile are attached to the wall with raw bolts. On the C Profile, I welded the angle iron on the runway beam for the end truck wheel tracks to run on.



Measured out the garage width (3m) and made the X axis (bridge frame) 3000mm \* 300mm. Welded the bridge frame together. Welded the angle iron on top for the trolley frame hoist trolley frame wheel tracks to run on.



Made the trolley frame Y Axiz 450mm \* 300mm. This is to fit on the X axiz (bridge frame).

Put a 40mm \* 40mm \* 5mm on the trolley frame. This is to clamp the hoist on. Drilled 2 holes (8mm), threaded them, this is to tie down the hoist. Added the wheels.



I started with the X axis end truck. This is to stabilize the movement of the bridge trolley. It also adds the angle in, to strengthen the bridge trolley for the lifting of weight. To the bottom part of the end truck, I add a guide that runs in the C profile (runway beam) to keep the X axis (end truck) on its tracks and to avoid it from running skew. The end truck dimension 600mm in length.



Below ... Done a bit of a measurement to make sure I get the guide rail measurements correct. "Busy working on an adjustable wheel guide with a spring loaded wheel system"



Below... Parting the end truck together, getting the calculated angles correct.



Below ... Completed end trucks shown. As you can see some parts are bolted together. This is to fit it to the runway beam (X axis). Once bolted down the system is mounted on the C rail (Runway beam) and cannot come out.



Shown below the guide wheels that fit in the C Profile of the runway beam, fitted on the end truck



Below ... Hoist Mounted to trolley frame, end trucks on and ready for its test run.





Below ... The final test, lifted and moved my lathe to a new position.



As you can see in the picture made the cross member for lifting. I used 12mm round bar, bent them (3 hooks) in a J hook shape, I threaded the round bar, so you can move the hooks up and down on the cross member, depending on the size of the item to be lifted.

Other enhancements

- (1) To add runners for the electric cabling (Trolley/bridge festoon), as to move with the trolley frame and bridge trolley. This I will be using curtain rails, which I will loop the cabling on the rail.
- (2) The next step is to paint it a nice yellow and add a motor on the X axis (Bridge trolley) to make it easy to move when heavy items are on the crane. This I will be using an old gate motor as it already has the ability to move in forward and reverse.
- (3) In addition the stabilizer wheels needed to be on roller bearing which makes it easier to align the end truck. I used skateboard wheels. I found that the original plastic wheels caused it to stick. So mistake fixed "Crane Version 2 LOL"

Lots of research and calculations done to get to this point.