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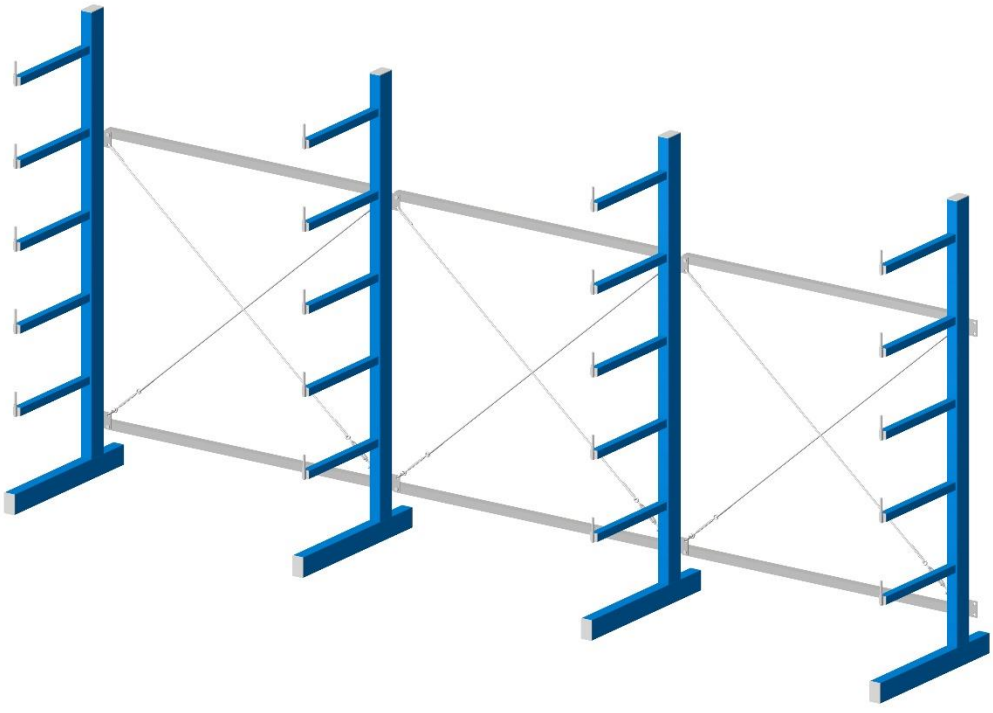
Livestock handling & yard equipment plans

# *Heavy Duty Steel Rack Plans Book*



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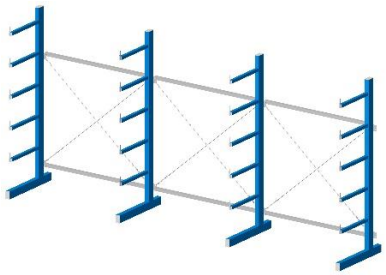
# Heavy Duty Steel Rack



This rack is the perfect solution to store your lengths of steel, timber or any other long lengths of material that you may have cluttering up your shed or workshop. You may wish to change the overall height of the main posts, the distance between the supports, number of bays or width to suit your own needs.

Tools required include a welder, either stick or mig, G clamps or welding clamps, tape measure, angle grinder for cutting and cleaning up welds, electric drill and a square. You may buy lengths of steel and cut it to the correct sizes if you have either an angle grinder or electric bandsaw or you may choose to have the steel cut for you from a local steel supplier. One thing that will make your job a lot easier is to construct a pair of welding trestles as shown on our website (www.kurraglenindustries.com.au). The plans for the welding trestles are free.

To make the best use out of your lengths of steel, we have a free-to-use Cutting List Optimiser on our website. Visit [https://www.kurraglenindustries.com.au/linear-cutting-list-calculator.htm](https://www.kurraglenindustries.com.au/linear-cutting-list-calculator.htm)

The following steel and materials are required to build the steel rack:

| | |
|---|---|
| 125x75x4 RHS – 2 lengths @ 8 metre | 100x6 flat bar – 1.5 metres |
| 75x5 flat bar – 1.6 metres | Wire Rope – 6 lengths @ approx. 3 metres each |
| 50x50x4 RHS – 2 lengths @ 8 metre | Wire rope clamps – 24 (4 used each cable) |
| 50x5 flat bar – 1.1 metres | Turnbuckle - 6 |
| 50x50x5 Angle – 12 metres | D Shackle - 6 |
| 15NB medium wall pipe – 1.6 metres | M16x40 Bolts and Nuts - 12 |
| 14mm round bar – 3.2 metres | |

| Cutting List for the Steel Rack | | | | |
|---|---|---|---|---|
| Item No | Quantity | Material | Size (mm) | Notes |
| 1 | 4 | 125x75x4 RHS | 2700 | |
| 2 | 4 | 125x75x4 RHS | 1100 | |
| 3 | 12 | 75x5 flat bar | 125 | |
| 4 | 20 | 50x50x4 SHS | 700 | |
| 5 | 20 | 50x5 flat bar | 50 | |
| 6 | 6 | 50x50x5 angle | 1920 | |
| 7 | 20 | 15NB pipe | 50 | Pipe for pins |
| 8 | 20 | 15NB pipe | 20 | Pipe for pins |
| 9 | 20 | 14mm round bar | 150 | Pins |
| 10 | 8 | 100x6 flat bar | 175 | |

DO NOT ATTEMP THIS PROJECT IF YOU ARE NOT A SKILLED WELDER AS FAILURE OF WELDS OR MATERIALS MAY RESULT IN SERIOUS INJURY TO PEOPLE OR PROPERTY.

1. Begin by cutting all of the steel as indicated in the cutting list. Label each with the item number on it using a marking pen and set aside.
2. Weld 1 of item 3 onto one end of item 1.
3. Weld 1 of item 3 onto both ends of item 2.
4. Tack weld Items 1 and 2 together as shown in Diagram 1. Ensure that the frames are square and fully weld. Four of these frames are required.

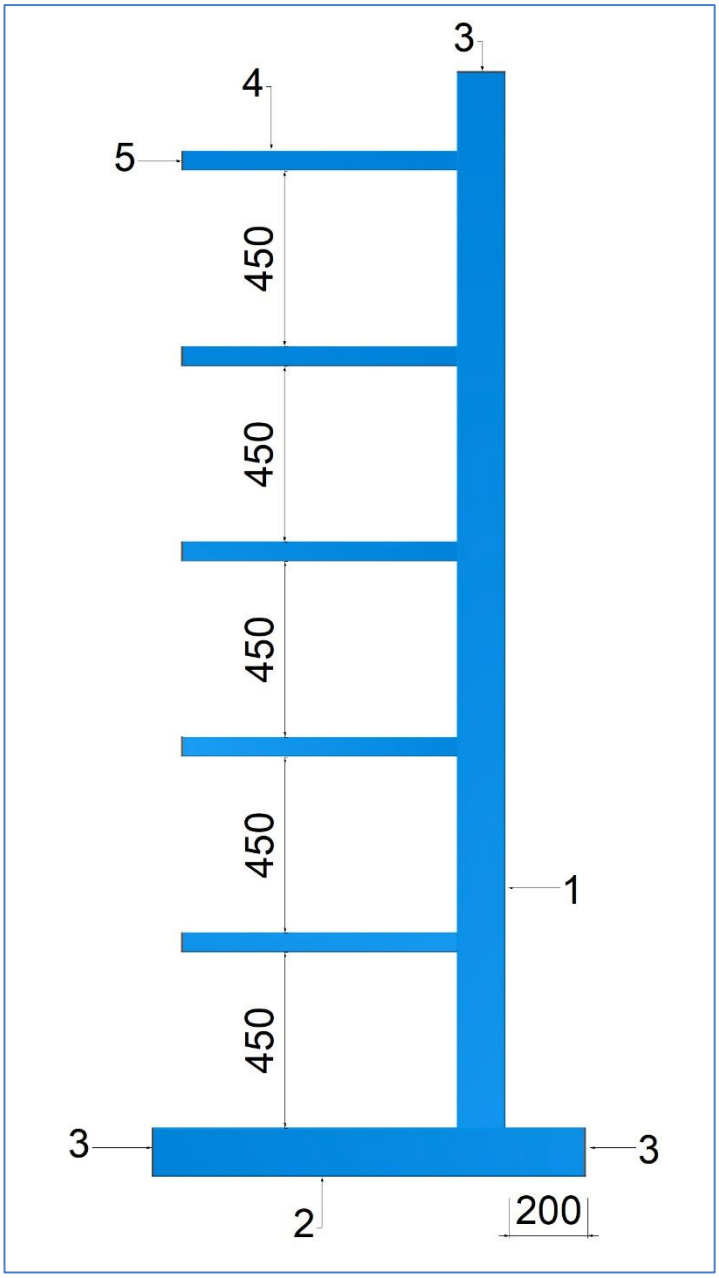



Diagram 1

5. Weld 1 of item 5 (50x5 flat bar) to one end of item 4 (50x50x4 SHS). You will need 20 of these.
6. Tack weld items 4 onto the centre of the front face of the posts (item 1) as shown in diagram 1. Check that these are square to the posts and fully weld.

7. Next weld one of each of item 8 onto item 9. Refer to diagram 2.

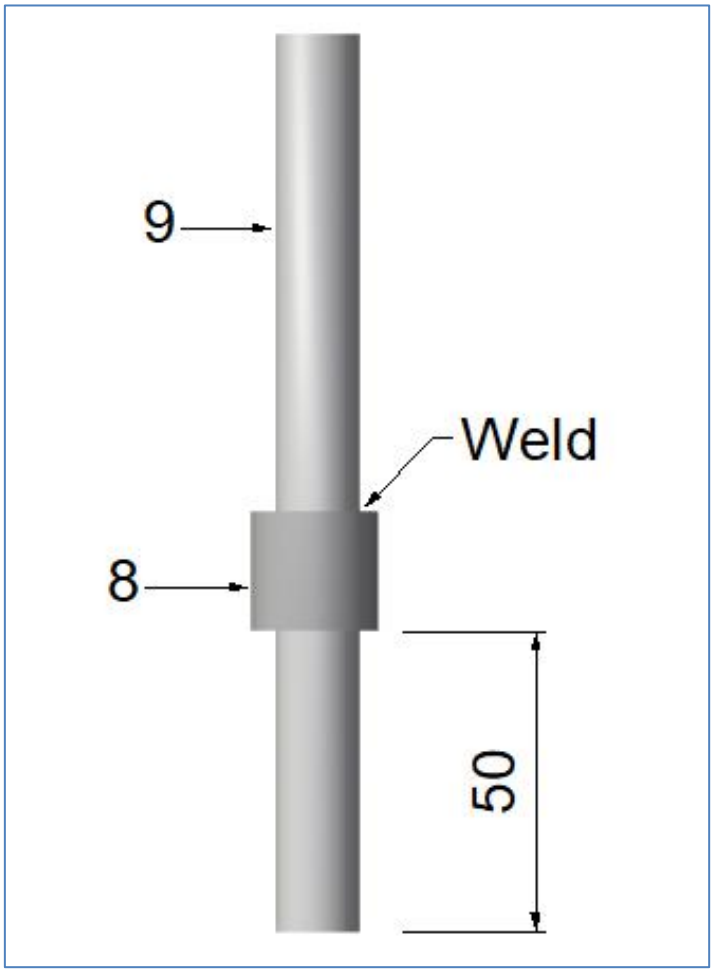



Diagram 2

8. Weld items 7 to the face of the outriggers as shown in diagram 3.

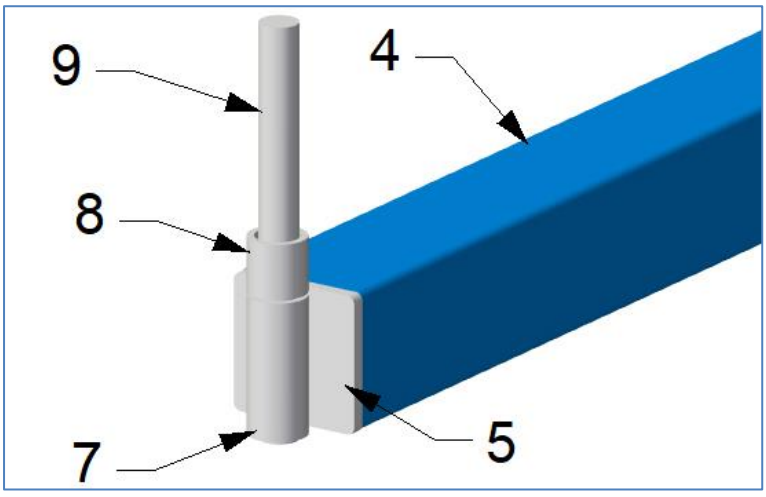



Diagram 3

9. Drill 17mm holes into the corners of item 10. Refer to diagram 4.

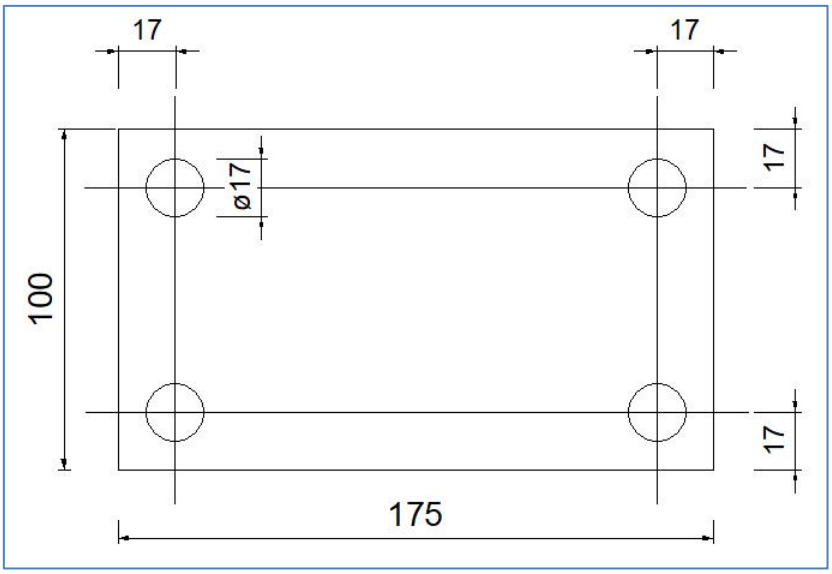



Diagram 4

10. Weld items 10 onto the rear of the posts as shown in diagram 5. The lower plate is shown in the diagram. The top plates are positioned 1600mm above the lower plates.

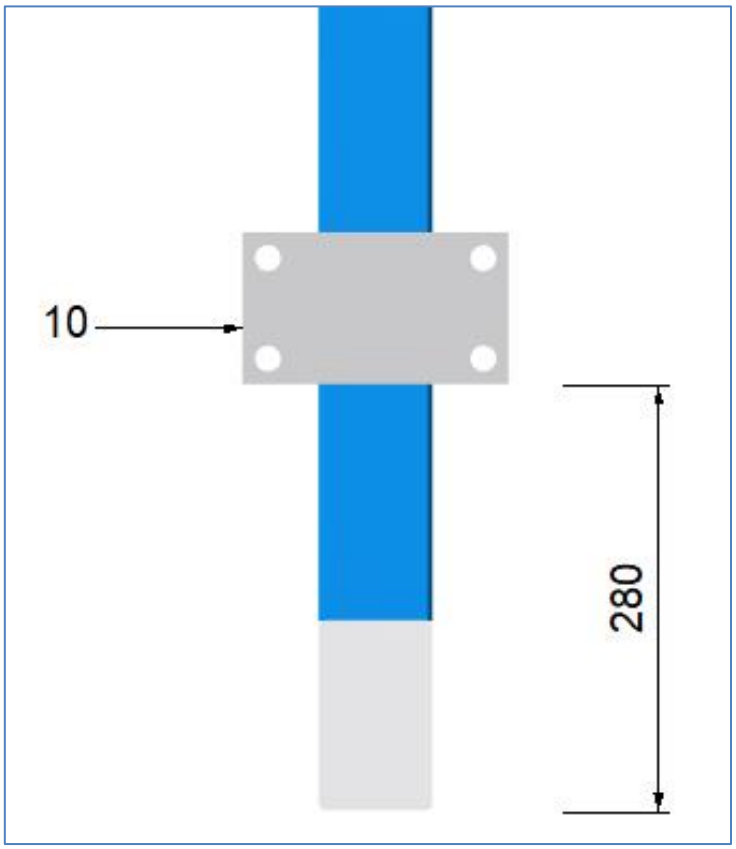



Diagram 5

11. Drill a 17mm hole in both ends of item 6. Refer to diagram 6.

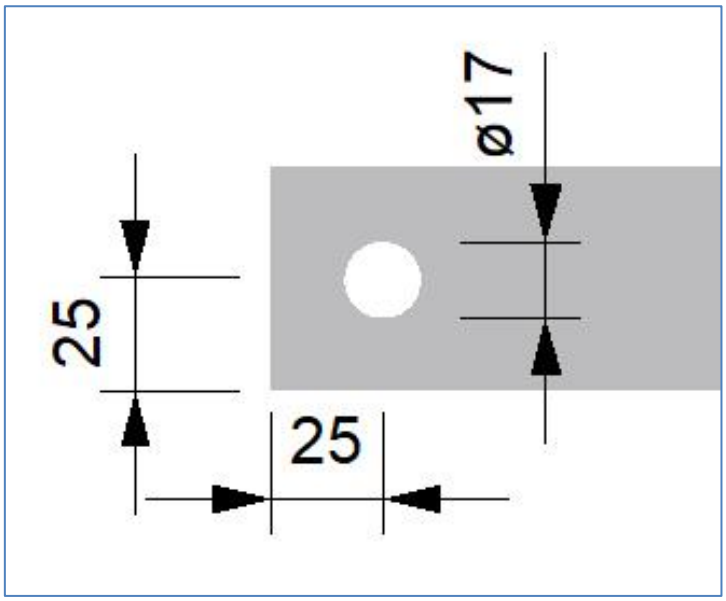



Diagram 6

12. Clean any welds using a grinding disc or flap disc and paint as required.
13. To assemble, you will need 2 people to help with the operation. Stand one of the post assemblies and using a bolt and nut, secure one of the angles to the lower hole in the lower plate and another angle to the top hole in the upper plate. Have another person hold the second post assembly in the appropriate position and secure the other ands of the angle using bolts and nuts. Secure the bolts and nuts tightly.
14. Cut the wire rope to the required length and attach it to the lower hole in the top plate using two wire rope clamps. A D shackle is used to secure a turnbuckle to the top hole in the lower plate of the second post assembly. Secure the loose end of the wire rope to the turnbuckle using two wire rope clamps. This needs to be repeated twice for each section so that there are two wire ropes running diagonally to each other.
15. Repeat the previous two steps for the remaining post assemblies.

If you have any problems or issues and need assistance, we are here to help. Send an email to help@kurraglenindustries.com.au

Proud of your project? Email us the photos of your equipment or yards that you have made from our books and we will put them up on our website for others to admire. You can even be in the photo if you would like to be. Be sure that you include your name, where you are from and a brief description. Please make sure that the photos are of good quality, in jpg (jpeg) or png format, at least 72 dpi and at least 900 pixels by 600 pixels. Email your photos to: projects@kurraglenindustries.com.au