



Plywood Grinder Box / Stand

This is a plan for making a wooden shipping box that will contain one Omega VI grinder, its accessories, and four legs. After shipping, the box and legs can be converted to a stand and the grinder can be mounted on it. The stand is suitable for training and light usage, but not for long-term, heavy use.

The only critical dimension is the outside box width – it must be close to 10 inches so it is wide enough to contain the grinder for shipping and yet narrow enough that it does not interfere with grinder operation when used as a stand. The dimensions below have been tried and seem to work well.

Bill of Materials

1/2" plywood:	[one 4' x 8' sheet makes 3 boxes]
1 @ 24" x 10"	top
2 @ 24" x 15"	sides
2 @ 9" x 15"	ends
2 @ 10" x 3"	skids
3/4" plywood:	[one 4' x 8' sheet makes 20 box
1 @ 2" x 4"	leg stop (any scrap 2" wide and at least 3/4 thick)
1.5" x 1.5" lumber:	[5' makes 1 box]
4 @ 14-1/4"	corner braces
Rustproof wood screws	[deck screws]
52 @ 1-1/4"	for assembling wooden parts
Waterproof glue	[10 oz caulking tube makes 3 boxes]
3 oz	for assembling wooden parts
Exterior grade enamel	
1 pint	to protect wooden parts
Square steel tubing	[one 7' pc ea for 1 box; four 10' pc ea for 5 boxes]
4 @ 20-1/2" x 1" outside	upper legs (just over 0.75" inside)
4 @ 20-1/2" x 3/4" outside	lower legs
Galvanized hex bolts, 1/4" x 20	
4 @ 3-1/2"	for attaching forward (parallel) legs
4 @ 2"	for attaching rear (A-frame) legs
4 @ 1-1/2"	for assembling upper to lower legs
Galvanized nuts	
24 @ 1/4" x 20	to lock two nuts on each bolt
Galvanized washers	
8 @ 1/4"	for bolt heads against wood
Rustproof paint	[11 oz spray can makes 5 sets]
2 oz	for steel legs



Instructions for making the box/stand and packing it for shipping:

1. Cut all square steel tubing parts to size. See Bill of Materials. Grind ends smooth.
2. Drill 1/4" holes 2" from one end of all eight leg pieces. These holes must be centered accurately so that they line up when nesting the smaller pieces inside the larger ones. **See Photo A.**
3. Nest the legs and secure each with a 1/4 x 1-1/2" bolt and two nuts. **See Photo B.**
4. Drill 1/4" mounting holes in two of the four upper leg pieces at 13/16" and 15-3/8" from the ends that are not already drilled; these will be the front upper legs. Drill similar holes in the other two upper leg pieces at 2" and 14" from the ends; these will be the rear upper legs. **See Photo C.**
5. Cut all lumber and plywood parts to size. See Bill of Materials and Plywood Layout.
6. Glue and screw two corner braces to the vertical edges of each end piece with three screws in each brace. **See Photo D.** The braces will be 3/4" short; leave them short on the bottom, flush on top.
7. Glue and screw two side pieces to the corner braces with three screws in each brace. The sides should overlap the edges of the end pieces. **See Photo E.**
8. Apply glue to the short ends of the corner braces and all four edges of the bottom piece. Drop it onto the corner braces; screw it to the ends of the corner braces with one screw in each corner. **See Photo F.**
9. Screw the sides and ends to the edges of the bottom piece with two screws in each end and five screws in each side. **See Photo F.**
10. Glue and screw the leg stop to the center of one of the side pieces and against the bottom piece with two screws. This will be the side next to the crank handle. **See Photo G.**
11. With the box upside down, place the grinder in operating position with the crank hanging down on the side with the leg stop. Mark the mounting holes, and drill them with a 3/8" bit. **See Photo H.**
12. With the box right side up, place the grinder inside, in shipping position. Mark the mounting holes; and drill them with a 3/8" bit. **See Photo I.**
13. Place the two rear upper leg pieces inside the box against the side with the leg stop. One end of each should be against the leg stop and each leg will lean against a corner brace at a 30-degree angle from vertical. Mark the mounting holes on the side piece; then drill them with a 1/4" bit. **See Photo J.** If you cannot get a drill inside the box, carefully measure and transfer the mark to the outside of the box and then drill.
14. Mount the two rear upper legs to the side with 1/4 x 2" bolts, washers, and two nuts.
15. Place the two front upper leg pieces inside the box at each end. The ends will be against one side piece and each will lean against the other side piece, also at a 30-degree angle. Mark the mounting holes on the corner braces; then drill them with a 1/4" bit. **See Photo K.** If you cannot get a drill inside the box, carefully measure and transfer the mark to the outside of the box and then drill.
16. Mount the two front upper legs to the corner braces with 3-1/2" bolts, washers, and two nuts.
17. Mark and notch the top piece to accommodate the legs mounted on the inside of the box. **See Photo L.**
18. Mount the grinder to the box with four 5/16 x 2-1/2 bolts, washers, and nuts. These should have been included with the grinder and are not included in the Bill of Materials.
19. Screw the top piece to the four corner braces with four screws. **See Photo M.**

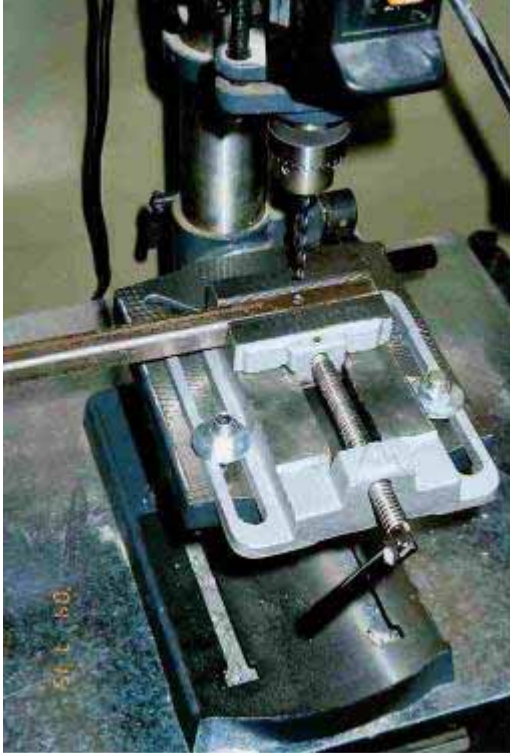


20. Check that the stand is stable and the grinder can be operated comfortably. **See Photo N.**
21. Remove top piece and disassemble legs and grinder from the box.
22. Sand and paint the wooden box and the cover.
23. Paint the legs.
24. Attach the skids to the bottom with screws, but NO GLUE. They need not be painted and may be discarded after shipping. **See Photo O.**
25. Mount the grinder in shipping position with the same 5/16 x 2-1/2 bolts washers, and nuts that were used to mount it in operating position. Then pack legs and accessories around it.
26. Inventory contents, prepare a packing slip, and attach it to the box.
27. Screw the top onto the box at its corners.
28. Cover the leg notches in the top with tape.

Instructions for unpacking the box and setting it up as a stand:

1. Remove the four screws and any tape holding the top down; remove the top.
2. Remove all accessories, parts, and legs from the box.
3. Remove the nuts and bolts holding the grinder in place; remove the grinder.
4. Nest the legs and secure each with a 1/4 x 1-1/2" bolt and two nuts. **See Photo B.**
5. Place the two rear upper leg pieces inside the box against the side nearest the crank. One end of each should be against the leg stop and each will lean against a corner brace at a 30-degree angle from vertical. Mount the two rear upper legs to the side with 1/4 x 2" bolts, washers, and two nuts. **See Photo J.**
6. Place the two front upper leg pieces inside the box at each end. The ends will be against one side piece and each will lean against the other side piece. Mount the two front upper legs to the corner braces with 1/4 x 3-1/2" bolts, washers, and two nuts. **See Photo K.**
7. Mount the grinder to the outside of the box with four 5/16 x 2-1/2" bolts, washers, and nuts. These were used to mount the grinder inside the box. **See Photo N.**
8. Screw the top piece to the four corner braces with four 2" screws. **See Photo M.**
9. Remove and discard the skids.
10. Check that the stand is stable and the grinder can be operated comfortably. **See Photo N.**

Photos



A. Drilling all leg pieces



B. Nesting legs



C. Drilling upper leg mounting holes



D. Attaching braces to end pieces



E. Attaching side pieces.



F. Attaching bottom piece



G. Attaching rear leg stop



H. Operating position mounting holes



I. Shipping position mounting holes



J. Attaching rear upper legs



K. Attaching front upper legs



L. Notching the top piece



M. Attaching the top piece



N. Checking assembly and stability



O. Attaching skids



1/2" Plywood Layout for three boxes

15. 15. 15.

24	Side	Side	Side	
24	Side	Side	Side	
9	End	End	End	
9	End	End	End	
24	10 Top	10 Top	10 Top	