



## Filling Jig and Process

The following describes the assembly of a simple Filling Table suitable for filling up to 18 - 27 Flex MSE Bags at a time. This Table is designed to hold the Bags open while a suitable Bag fill mix is dumped in by a machine. Once the Bags are filled, the Bags remain in an upright position for closing and easy placement. The unit can be made into a 27 hole Jig by increasing the removable top's surface area by 1/3. If space allows, it is recommended to build at least two Jig Tables to increase filled bag output. Two 18-hole Jigs, 3 men and a skidsteer can put out 60 complete Bags per hour.

**Materials:** (enough for two 18 hole Jigs with Screed Inserts)

2 – 4' x 8' sheet  $\frac{3}{4}$ " plywood

19 – 2" x 4" x 10'

4 – 2" x 6" x 10'

3 lbs – 3" screws; or 3 1/4" nails

8 – Metal handles for ends of Top Frame (+ appropriate screws)

36 – 2 gallon planter pots (8" inside diameter) (54 for two 27 Hole Jigs)

**Tools:**

Circular or Hand saw

Jig/Reciprocating Saw – (for cutting Bag holes in plywood)

3/8" Pilot drill bit for Jig

Drill with screw bit; or Hammer

**Assembly:** (reference photos on page 3)

Framed Plywood Top and Screed Insert:

1. Rip 1 piece of plywood into two 2' x 8' pieces.
2. Measure and mark for holes to be cut (2 rows of 9 holes in each plywood top, 10  $\frac{1}{2}$ " on center or use planter pots as guides).
  - for round pots; your diameter should be equal to the top inside dimensions of the pot (approx. 8  $\frac{1}{4}$ " )
  - for square pots; make approximately an 8" square cut out

*\*Note: 27 hole Filling Tables can be constructed by cutting full plywood sheets to 3' widths (add an extra piece of plywood to supply order)*
3. Cut "filling" holes (always check your first hole to ensure pot and bag fit properly).
4. Cut each 2" x 6" x 10' to build an on edge frame around circumference of plywood.
5. Screw 2 handles to each end of the top frame.
6. Screed Insert: Rip plywood into 2 20" x 92" pieces (cut to fit easily inside the Jig frame, seated directly on top of the Bag holes).
7. Screw the cut plywood Inserts to the table tops, flip the removable table over, and scribe the Bag holes on to the Screed Insert.
8. Cut out the holes on the Screed Insert.
9. Cut 4 pieces of 2" x 4" to inside Table Top dimension to be used as Screeder boards.

#### Filling Frame:

1. Cut 2' off ten of the 2" x 4" x 10', and assemble the upper and lower 2' x 8' frames and cross braces.
2. Cut the remaining two 2" x 4" x 10' into 8 pieces, 30" long, for filling frame legs. (30" at the Table Top holes is the optimal height for the filling frame, as it allows the Bags to rest on the ground during filling, allowing them to expand, and making closing of Bags while in the frame much easier.)
3. Attach legs to inside corners of frame – screw and/or nail from both sides to reinforce and strengthen the frame.

#### Planter Pots:

1. Cut the bottoms out of the planter pots with a jig or reciprocating saw to allow the material to pass into the Bags.

#### *Filling Process:*

1) Place the Framed Plywood Top (holes down) on top of the Filling Frame; do not attach permanently. Feed Bags through the holes in the plywood – open end up, with no more than 4" of Bag material sticking up. Insert planter pots inside Flex MSE Bags and press tightly into holes. Repeat until all holes have Bags secured in them. Place Screed Insert over the secured Bags.

2) Guide the front-end loader as your 66/34 to Sand/Organics mix is dumped into the Jig. It may be necessary to screed additional soil into the holes to completely fill the Bags. Some compaction of fill material may be needed to ensure consistent density of fill, and to optimize bag fill size. (the Screeder boards work well to compact). Filling Bags to the Screed Insert level leaves enough Bag material to close, and optimizes filled bag dimensions. *\*\*The optimum filled, 'foot compacted' bag is approximately 30" long, 5.5" high, and 12" wide. Optimal fill volumes are 32L/1.15ft<sup>3</sup>/29 dry US qt per Bag, filling 22 Bags per YD<sup>3</sup>, or 30 per M<sup>3</sup>. Bag weight for spec 6634 mix (vegetative mix) should be no less than 65lbs. Coarser granular material will add more weight per unit. Slight variation in fill volumes will not affect the integrity of the structure, only the number of Bags used.\*\**

3) Remove Screed Inserts and planter pots, then lift the Framed Plywood Top off the Filling Frame to gain access to the filled Bags. Close Bags securely by zip or galvanized rebar tie, sewing, or hog ring. *Close the Bags at consistently the same spot, leaving no more than a 3" tail at the end. If sewing the Bags shut, leave a 4" seam at the end.*

4) Lift the Filling Frame over the filled and closed Flex MSE Bags. Place the Filling Frame beside the filled Bags; re-place the Table Top; repeat filling process. You may install filled Bags immediately; palletize them for later use; or leave them in place for easy access. When palletizing Bags, ensure that pallet nail heads are buried and that the bottom layer of Bags does not overhang the edges or slip between the slats. Covering filled units will keep them dry, and provide protection from UV exposure and machine damage.



1) Assembled filling Jigs



2) Placing Bags, held by pots



3) FLEX MSE Bags secured in place



4) Filling the FLEX MSE Bags



5) Removing the planter pots



6) Remove Top Frame, seal Bags with cable/rebar ties



7) Lift and reset frame, leaving Bags for use or palletizing

**ADDENDUM:**

Screed Insert:

