

Technical Data

FIXTURING METHODS

FLOW THROUGH VACUUM

This style uses LDF (Low Density Fiberboard) or MDF (Medium Density Fiberboard) as a sacrificial surface for sheet material to be cut on. The porous nature of LDF or MDF allows vacuum to pass through allowing the material to be held in place for machining. As parts are cut out of the sheet material, vacuum loss starts to occur from the slot produced by the cutting tool. This can lead to part lifting or movement especially in small parts. Cutter diameter will also influence part movement. A 1/2 diameter tool will exert 25% more lateral pressure than a 3/8 diameter tool.

When cutting small parts in sheet material, one may want to consider tab or skin cutting to prevent part movement.

DEDICATED SPOILBOARD

Dedicated spoilboards are used for reoccurring production runs where optimal cycle times are needed. This work holding method creates vacuum chambers in the sacrificial board specifically to the shape of the parts being cut. This elimination of vacuum loss relates to improved cycle times and part finish.

STEPS TO CREATE A DEDICATED SPOILBOARD:

1. Surface both sides of your MDF board.
2. Lay out the part pattern on the MDF and determine quantity that will fit.
3. Cut the part profile into the MDF board using a larger diameter tool than would normally cut the part. Make your slot depth 1 to 1.5 times the cutter diameter.
4. A gasket groove must be cut next inside the part profile to create a vacuum seal. The groove should be 1/2 the gasket material thickness to allow for proper compression.
5. A grid pattern must then be cut inside the gasket groove to distribute the vacuum evenly throughout the vacuum area.
6. Drill holes throughout the pattern in the intersections of the vacuum grid until there is no resistance on your vacuum gage on the machine table.
7. Seal the board using rubberized coatings, polyurethane sealers or a sanding sealer to prevent vacuum from passing through the board in unwanted areas.
8. Apply the gasket tape.

These operations sound time consuming. It will be for your first board. Once you become familiar making these fixtures, you will make up for it in your cycle time reductions and part finish. A lot of headaches and problems can be resolved by using the proper work holding.

RAISED SPOILBOARD

This is generally used where secondary operations are needed and the spoilboard will interfere with the secondary tool. Raised spoilboards are another type of fixturing that works well for routing parts such as circles from squares where the scrap or fall off is of such a size to be potentially harmful to the tool and or operator when it is cut free. A raised spoilboard should make sure the fall off would not interfere with the first and second tool and that the fall off would be free and clear of the tool path.

SPOILBOARD PREPARATION

GOOD PART HOLDING IS ESSENTIAL FOR ROUTING PRODUCTS AND THE FOLLOWING STEPS WILL
ensure you properly surface your new spoilboard to get maximum air flow.

1. Place your new sheet of MDF on the router table.
2. Turn on your vacuum
3. Use the 91-100 series spoilboard cutter and surface the top edge.
4. Flip over the sheet of MDF and turn the vacuum on again
5. Surface the top side.
6. Tape or seal the edges of the spoilboard to prevent air leakage.

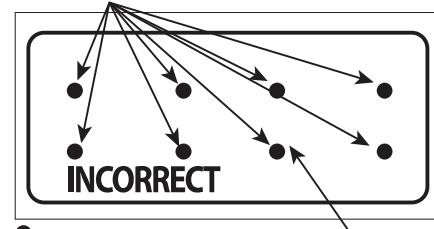
The following benefits will be achieved if you surface your spoilboard daily:

- A level spoilboard allows for consistent cuts
- Removes grooves caused by routing
- Reduce vacuum loss due to clogged pores on the material surface due to dust and chips
- Preventing material warpage caused by humidity in summer time

Proper Spoilboard Techniques

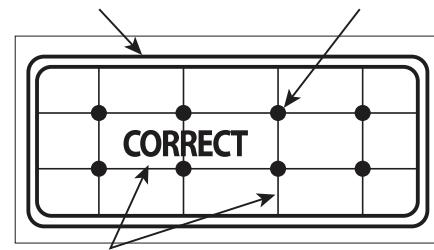
PRESSURE POINTS

DOES NOT ALLOW VACUUM TO COVER ENTIRE PART



● x 8 = ACTUAL AREA OF VACUUM

VACUUM PORTS



CHANNELS FOR VACUUM DISTRIBUTION

ALLOWS VACUUM TO REACH OUTER MOST EDGE OF THE PART

□ ACTUAL VACUUM AREA