

How's It Made?



Daniel Kelly, design engineer, at the QC Screen Company's 20-ton turret punch press

Quality Custom Screen Company

OEM and replacement screens for agricultural applications



QC Screen Co.

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Company Personnel

- Doug Clark, Co-owner
- Steve Galgoczi, Co-owner

Company Highlights

- Precision-punched screens for air screens, density separators and other screening applications.
- Replacement ball trays.
- Complete screen test lab.
- Established 2002.

In principle, making screens for air screens and other agricultural screening equipment is a simple process. Begin with a flat sheet of metal, punch out several rows of slots or holes, and fasten the sheet metal to a wooden frame.

The challenge is to begin with a high-quality sheet of metal, punch the slots or holes to tolerances within a few thousandths of an inch, and then fasten the sheet metal to a wooden frame made with materials and workmanship suitable for fine furniture.

Meeting that challenge to produce OEM and replacement screens is the business of Doug Clark and Steve Galgoczi, owners of Quality Custom Screen Company, which they established in 2002.

Together Galgoczi and Clark bring a total of over 50 years experience in air/screen applications.

"We are offering custom perforated

screens for air/screen cleaners, something that has never been offered to this market before," says Clark. "With our



Steve Galgoczi (left) and Doug Clark



state-of-the-art perforating equipment we provide a wide array of product offerings that will add new value to our customers' existing screening equipment."

First, the Frames

The frames begin with kiln-dried poplar from Michigan and Indiana. The wood arrives as 12-inch wide boards planed smooth on two sides.

The boards are ripped into proper width for the screen frame's stiles and rails. An inventory of blank pieces is stockpiled, ready for the mortise and tenon machines.

The numerically-controlled tenoner machine, manufactured in Italy for the furniture-making industry, produces tenons rounded horizontally, vertically, and inclined.

The rounded tenons allow an additional amount of glue to remain inside the mortise as the frames are assembled.

A slot mortiser cuts each mortise slot in a matter of seconds.

"The matched mortise and tenon are precision cut and precisely matched to provide rigidity to the frame," Clark says. "The glue bonds the pieces together to make a strong frame that will not become loose with use."

Some frame specifications require that some of the rails and styles have a metal casing. These metal casings are out-sourced to a metal fabrication shop with presses capable of making four bends on each piece.

"Making four bends is an unusual process," Clark says. "Not every shop has that kind of equipment." ▶



(top) Poplar boards going through a table saw to make blank screen frame styles and rails. (middle) Dave Lowell operates the twin-table round-end tenoner. (bottom) The slot mortiser in action. (right) Completed style and rail with rounded tenon ready to be glued and assembled. (Joe Funk photos)



QC Screen Company's punch press tool turret (middle) Partially punched sheet (above, right) Die punch (above left) embossed company logo on a model-size herringbone screen.

Making the Screen

QC Screens begin as a blank sheet of 18 or 20 gauge rolled or stainless steel. Sheets are individually placed on a 20-ton turret punch press

The press has a pair of grippers that precisely move and position the steel

sheet on the press while the punch uses a die-set to systematically make the screen slots.

Depending on the size of the slot and the thickness of the sheet, the machine makes 400 punches per minute. A typical screen can be completed in about

15 minutes.

Altogether, Clark estimates that they have about 200 die-sets, each for a slightly different size or shape slot (or hole).

The press typically operates at 400 punches per minute with a tolerance of +/- 0.004 inch. After all the slots (or holes) are punched, the press makes nail holes to fasten the screen to the frame, embosses the customer's company logo and slot description on the edge of each sheet and trims the sheet to its final size.

"Each screen has a clear, permanent label," says Steve Galgoczi. "A mill operator does not need to worry about the screen's label wearing off—it will always be there."

Computer Designs

Making the screen begins at the computer control screen. A designer tells the press exactly how to align the punches on the sheet and which die-set to use. The press's turret holds up to 30 sets. As per its instructions, the press automatically retrieves each die-set as needed.

Galgoczi says they have a library of designs to make replacement flat screens for virtually every make of screener including Carter Day, Delta, Cimbria, Clipper, Crippen, Westrup, Bench, Hance and LMC.

"With this press we offer custom perforated screens for air/screen cleaners which have never been offered to this market before," says Clark. "For the cost of a new set of screens, operators can have a 'designer screen' custom punched to their exact specifications."

The punch press's versatility allows QC Screen Co. to design a high performance screen pattern that Clark says removes a greater percentage of split beans from whole beans.

"Cross-slot or parallel-slot patterns can allow split beans to span the opening and remain in the whole bean product flow," he explains. "The herringbone slot helps tip and drop the split beans through the opening."

In concept, screens are an uncomplicated product. With QC Screen Company's precision equipment, making screens is a deceptively uncomplicated process.

Joe Funk, editor