

# Beautiful Stainless Steel Railings!

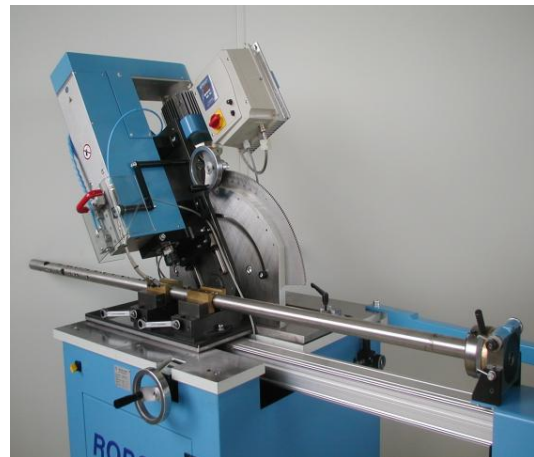
Highest standards in design and quality are required to win contracts for stainless steel railings. The desired excellence comes with attention to detail and extensive manual grinding, buffing, and polishing steps. Thus designs are often simplified at the cost of exceptional looks to minimize risk and to generate a profit. Does this have to be? This article describes that by using a cost efficient, universal drilling and milling system like the ROBO30, you have a profitable solution to lower risk, simplify the overall process and increase productivity for making more beautiful stainless steel railings.



Great looking designs promise the highest profitability but they also create great risk and counterproductive challenges. The process to create the fabrications is starting with great care to detail. (A fact, marketed by many company websites and even shown on YouTube, <http://www.youtube.com/user/stainlessrailing>) Often it seems that the use of standard, modular components is best, because otherwise difficult welding tasks are needed or large machines or robots are required to properly prepare the many

components. The long list of companies marketing this approach at their websites is clearly proof for this. Besides, after cutting the individual parts to size, complex fixtures are needed to assemble fabrications with all components in the right spot for welding. Welding joints for mating or intersecting parts are mostly large especially in complicated detail areas. Great looks require difficult to achieve perfect centering and accurate spacing. The initial tack welding steps secure everything in place before finish welding takes place. Then straightening and the final labor intensive and timely manual finishing steps are performed. If things go wrong, costly rework is the result. For these reasons mostly complex designs are avoided, simplifying the looks and making great stainless steel railings less desirable.

A building block approach with perfectly fitting custom components, which just need to be inserted into each other, is the solution. This approach is possible by using a universal drilling/milling machine, like the ROBO30. With the capacity to prepare components up to a length of 3,000mm (118") it can precisely drill straight holes or mill angular holes that match exactly the size of the mating component. Thus the mating members can be inserted. Now the railing fabrications are based on your own building block system, where the elements are assembled holding each other in the perfect place.



Picture: Universal Drilling System – Robo30

With the ROBO30 the tubular materials or the flat bar stock is loaded into the machine by clamping them into a rotary chuck. This clamping chuck is located on a positioning slide with digital readout display, which positions the component precisely

for machining. In a simple set up step, the part then is referenced. The first feature position is approached by digital readout display and the part clamped with dual self-centering clamps. The drilling angle for the machining spindle can be set and clamped to the desired machining angle.

The best drilling speed and the required feed rate is selected according to the material used and per the tooling type clamped.

Via foot switch the drilling/milling feed is started and stopped for automatic return. As desired, also minimal mist lubrication is available, extending the tool life and speeding up the process.

Per the positioning system, the next part feature is then approached and the part securely clamped again, ready for the next operation. If the part calls for holes in various places around the tube, the chuck can be oriented precisely with vernier scale accuracy. Also, while keeping the part in the same linear position, opposite holes are drilled by simply rotating the part 180 degrees and re-clamping of the chucks. For angular holes, the head is quickly oriented and locked to the perfect opposite angular position.

To operate the ROBO30 is easily learned and does not require advanced programming knowledge. After a very short learning period, you create with the universal drilling system ROBO30 properly centered and accurately placed precise holes for intersecting components by simply following a table. Intersecting positions are accurately prepared and the process is easily repeated. For larger repetitive quantities, also fixed stops can be set. (See ROBO 30 video on YouTube: <http://www.youtube.com/watch?v=1BeGzakrgTs> )

Then the cut to size mating parts are simply inserted into the holes for welding. And with a perfect fit, welding seems are small or can even be eliminated in the case of railings for inside applications.

The ROBO30 is also the right machine for friction drilling, which will create strong joints for threads or bushings while eliminating the need for bracings or the use of inserts to create reliable and secure connections. An optional tapping unit can integrate tapping operations as needed while the part is loaded in the ROBO30.

One example where the benefits are most obvious are frame type parts, like in the case of the sample frame shown in the picture ("Capability Example"). The intersecting components, (round bars), are cut to length oversize with larger tolerance range. The

frame is then assembled by inserting the bars into the perfect cut holes of the outer frame. Then only the frame needs to be clamped in a fixture. After tack-welding the outer frame, the finish welding can start already. In



Picture: Capability Example

the areas where the components are mating, only a very small welding seam is needed. (See picture: The perfect fit.)

When this process is used for inside applications, only tack welding is required here to fix the inserted bars against rotation. Obviously, this will create a tremendous time savings for the overall finishing time.



Picture: The Perfect Fit

These advantages have already convinced many users in Europe, where stainless steel railings are very common. Here the ROBO30 is a great success and well accepted in the market.

Beautiful looking, profitable stainless steel railing fabrication is simplified by using the universal angular milling/drilling system, ROBO30. With this system you can create a reliable building block approach and reduce the risks for rework. One simple cost-effective step, to precisely drill some of the fabrication components, creates tremendous benefits for you and for your customers. For more details, references or a quote, please feel free to contact Metal Cutting Solutions, Inc. ([www.mcshop.com](http://www.mcshop.com))

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