

MAXIMUM SPEED

Metalcraft Technology uses advanced tooling for high-speed production at any volume level

Coquitlam, British Columbia: Investing millions of dollars in the latest automated equipment and hundreds of hours in advanced training, Metalcraft Technology proves that the best technology, wisely used, results in quality, productivity and success. In the competitive fabricating industry, smart use of the best equipment most often wins the race.

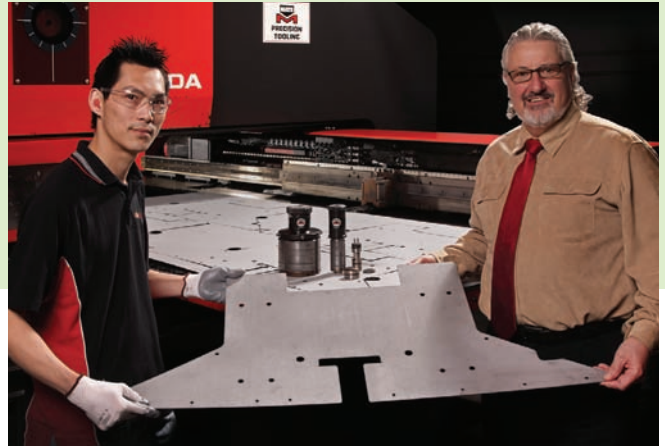
One of Metalcraft Technology key investments is punch press tooling but the investment goes beyond the tooling itself. Metalcraft Technology trains its operators in its use and utilizes the tooling supplier's knowledge to maximize these tooling resources to the maximum. When it started in 1997, the company standardized on one tooling style, Mate Ultra Tec, and has stayed committed to it for 18 years.

Unusual to commit to one tooling style? Not in Metalcraft Technology case. Learning everything it can do and then sticking to the formula has paid off with greatly reduced tool setup times, increased productivity, longer tool life and top quality products, according to Ferroz Abdulla, customer support/lean manager.

METALCRAFT TECHNOLOGY "PROFESSIONAL TEAM" APPROACH BUILDS CUSTOMER LOYALTY

"Metalcraft Technology began in 1997 with a team of 10 professionals," reports Mr. Abdulla, son of founder and President Azim Abdulla. "We consider ourselves a professional team in all respects because of the overall quality of our people, technology and the way we operate. We've recently invested over \$2.5 million in automated fabricating equipment including adding more Mate Ultra Tec tooling which we've used from the start."

"By having the latest and finest technology, training and cross-training for maximum technology utilization, we've become a valued supplier to leading Canadian and US manufacturers," Mr. Abdulla stated. "We're successful because of our professionalism with the result that we have grown to a team of 30 professionals. We've achieved that despite the difficult economy and depressed manufacturing environment. Our customers needs continually change and we've learned to quickly adapt to those changing needs," reports Mr. Abdulla.



Thao Huynh (l), Metalcraft Technology, engineer/overall facilitator and Peter Storey (r), Mate Precision Tooling, sales engineer. They're displaying a 46" x 20" 16 gauge satin coat steel rack drive component punched using 14 different Mate Ultra Tec tools in two auto indexing stations of an Amada press. Despite heavy use, the company reports over 75 percent of its originally purchased Ultra Tec tooling continues to punch quality parts after 15 years of use.



Founder and president Azim Abdulla (l) and son Ferroz Abdulla (r) customer support and lean manager, provide a culture of professionalism and high quality in Metalcraft Technology' products with help from long time supplier Peter Storey, (c) sales engineer of Mate Precision Tooling. Displayed are three products precision punched using Mate Ultra Tec tooling: a computer server chassis (l), a medical products cabinet (c) and an electronic display chassis (r). The products are fabricated from 14-gauge stainless steel, cold rolled steel and aluminum.

Quantity requirements often are a challenge, according to Mr. Abdulla. "We get orders now for just one fabricated part and other orders for as many as 20,000 parts. Customer inventories are minimal so if we're asked to meet just-in-time requirements even it means setting up for a part run of just one, 100 pieces or 20,000 pieces. Materials also vary a lot, from different grades of steel, aluminum, satin coat, copper and stainless in very thin to thick plate. With such a variety in small to large quantities, planning jobs for maximum machine utilization – including efficient programming, tool setup, automation and tool maintenance – is an ongoing challenge, according to Mr. Abdulla. Punch press tooling plays a major role.

TOOLING CHOICE FOR HIGH SPEED

Tooling selection has been important to Metalcraft Technology ongoing success, according to Mr. Abdulla. "We've had a long relationship with Peter Storey of Mate who started us with Ultra Tec. He's helped us maximize the benefits of the tooling system through many projects. From the start, we wanted to be able to operate our Amada presses at top speed – 350 hits a minute depending on material and thickness – with the assurance that the tooling would perform well delivering top quality."

Insuring this top performance requirement is Ultra Tec's tooling design. It features a self-contained spring canister assembly that maintains uniform stripping pressure and a hardened guide to maximize turret bore life at all press speeds, even the highest. The punch is manufactured from M-2 high speed

Punched quality is ensured at Metalcraft Technology with this newly installed FabriVISION system. It is an automated measurement and digitizing system that compares the first fabricated articles to the original CAD drawings for emailing to customers for acceptance.



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The Mate Ultra Tec® tool system consists of these components.

steel with a minute back taper and near polished punch flanks to reduce friction and extend tool life. The strippers, which slide into the guide, include a recess, which creates an extra 3.00 mm of grind life. This feature alone, by conservative estimates, can add many thousands of additional hits to the tool's useful life. This was very important in Metalcraft Technology's initial decision to go with Ultra Tec.

SET-UP, LENGTH ADJUSTMENT AND DIE FEATURES ENHANCE PRODUCTIVITY

The Ultra Tec tooling incorporates a hardened guide assembly with internal and external lubrication grooves together with a quick length adjustment device and quick change stripper mechanism. Punches made from high speed steel. Strippers have a 2.00 mm recess and locate into a spring loaded lock ring on the guide. This design

makes assembly and length adjustment easy and fast, using a minimum of set-up tools.

The dies for the Ultra Tec system are made of A-2 5% chrome air hardened tool steel that provide optimum balance between the opposing conditions of hardness and toughness. Mate's unique Slug Free die geometry guarantees effective slug discharge after every punch cycle. By clearing the slug after every cycle, the possibility of slug pulling is eliminated, improving piece part quality.

AUTO INDEXING MULTI-TOOLS LOADED WITH SPECIAL TOOLS

Metalcraft Technology maximizes turret press punching features with two auto indexing Multi Tools loaded with special form tools to punch louvers, knockouts, card guides, embossed and many other special features.

With widely varying part runs, the transition from one type of material and thickness to another can get complicated and time-consuming. The auto indexing stations with Multi Tools help

shorten the tool setup process for job changeovers. While the bulk of the tools in the turret are standard tools and do not change, the Multi Tools are loaded with special application tools to punch the formed features.

"Changing these Ultra Tec tools is really fast," reports Mr. Abdulla. "The tools pop apart with just a touch of a button and go back together just as fast. They are easy to adjust and assemble visually. The punch, guide and other components are easily disassembled by hand and lock up correctly and quickly... our operators set tool length in just 5 seconds. No shimming needed. The tooling's push-button design allows for fast and easy setting of overall length and die penetration in precise increments (0.006 inch for a 1/2-inch A station tools and 0.008 inch for larger station tools) without the need for measuring tools."

Metalcraft Technology reports that 75 percent of its originally purchased Ultra Tec tooling 18 years ago is still in everyday use.

Ultra Tec's fully guided design also adds to the tool's robust design and long

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life. This is especially important for forming operations like cluster punching where material thickness is exceeded to punch diameter ratios and where hit balance can cause problems. Ultra Tec's guided design prevents side-loading and twisting forces that can occur with standard tools on thick material and those that are difficult to punch like stainless," reports Mr. Abdulla. "While the initial cost of Ultra Tec is more, the cost per hit is far less. The tool reliability, predictability and longevity makes it a very good value."



Hung Lam, turret press operator is shown loading one of the two auto indexing stations with Ultra Tec special application tooling. Metalcraft Technology part requirements include louvers, counter-sinks, knockouts and more. Setting up the Ultra Tec tooling for these forming operations takes only two to three minutes where standard tooling requires more than twice the time and is tedious.

FIRST ARTICLE MEASUREMENT AND AUTOMATED PUNCHED PART HANDLING

While Ultra Tec tooling streamlines the actual punching process, Metalcraft Technology investment in complementary technology enhances productivity and quality even more.

FabriVISION is a recently added automated measurement and digitizing system that compares the first fabricated articles to the original CAD drawings for emailing to customers for acceptance. Using this system in connection with the punching process facilitates a faster approval of prototypes and first articles so that punching and other fabricating processes can proceed with minimal wait time.

Another wise equipment investment for Metalworking Technology is automation. Following punching, parts are moved from the turret press via robot to an adjacent press brake for bending then on to pem-setting, metal finishing and assembly.

Learning the use of this new technology is ongoing at Metalcraft Technology. All employees participate in a full day of training every month of the year. The training varies by need with a focus on lean initiatives. Efficient punch press tool utilization and laser operations are two areas that get regular attention with Peter Storey's input.

With both Mr. Abdulla and Huynh Greenbelt Certified and more certifications targeted, the company's growth is proof that lean works. Summing it up, Mr. Abdulla says that "Metalcraft Technology' commitment to lean shows off both in the professionalism of our people and our equipment improvements and utilization. It's an ongoing process of using the best and doing the best, whether it's with tooling, training or something else." CM

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