

Today's

February 2014

# Industrial Products & Solutions

The Complete Purchasing Guide for Today's Industrial Market

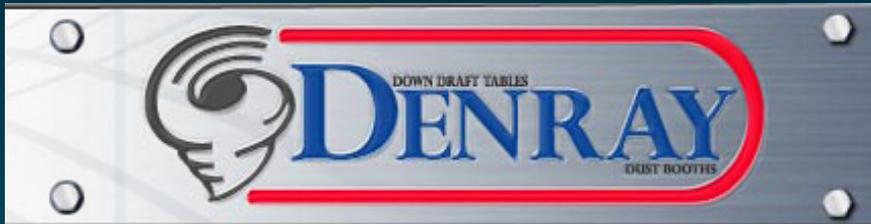
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# Today's Industrial Products & Solutions

The Complete Purchasing Guide for Today's Industrial Market [www.tipsmag.net](http://www.tipsmag.net)

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*Today's Industrial Products & Solutions*™ is published ten times a year on a monthly basis by H&F Media Group, Inc., 951 1<sup>st</sup> Ave. W. Alabaster, AL 35007 USA. *Today's Industrial Products & Solutions*™ is distributed free to qualified subscribers. Non-qualified subscription rates are \$57.00 per year in the U.S. and Canada and \$84.00 per year for foreign subscribers (surface mail). U.S. Postage paid at Birmingham, Alabama and additional mailing offices.

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# WIDIA Victory™ Turning Portfolio Expands, Maximizing Performance in Wide Range of Materials

The WIDIA Victory turning portfolio features the Universal Roughing geometry for smooth chip forming and increased tool life.

Shops turning a wide range of materials face extreme challenges daily. They know that the most efficient machining means finding the “sweet spot.” Too slow may increase attention to detail but also increase opportunities from speedier competitors. Accelerating speeds and feeds may actually lower efficiency if you’re using up tooling faster or stopping your turning center more often to clean out stringers.

The WIDIA Victory™ family of turning inserts from WIDIA is announcing new geometries and grades that extend your turning sweet spot by delivering excellent chip flow that results in smooth machining, improved efficiencies, and extended tool life.

For difficult-to-machine materials like Inconel and Rene in complex aerospace applications or cobalt-chromes and high-alloy stainless steels in precise medical applications, the new WIDIA Victory FS geometry is a ground, high positive design best used in finishing tasks where surface finish and minimizing part deflection are critical. Precision grinding, proprietary nose geometry, and optimized edge treatment result in an insert that retains its high-quality cutting edge with minimal heat generation and good chip breaking at finishing parameters. Its high rake angle reduces cutting forces and also reduces built-up edge.

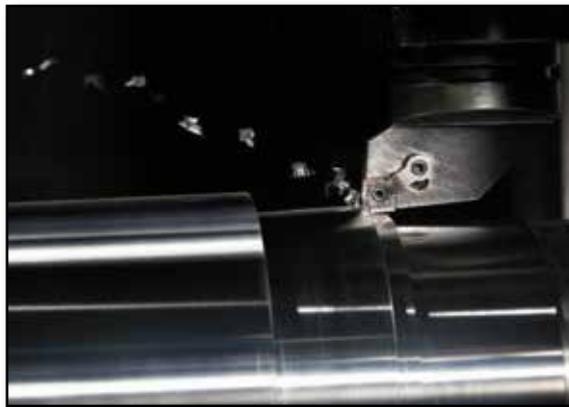
The -FS is available in WS10PT, a high-performance PVD grade. This grade utilizes a two-layer coating that increases coating integrity and reduces depth-of-cut notching, increasing productivity and dependability. All inserts in the WS10PT grade undergo a post-coat treatment to increase compressive stress and improve edge toughness. This delays built-up edge and results in longer tool life. WS10PT is available in other geometries including the UR geometry.

## Stainless Steel Performance

WIDIA's Universal Roughing (UR) geometry is specifically designed to increase roughing and medium turning performance in stainless steels and steel workpieces. Its unique chip breaker and rake profile design without inflection points breaks up stringers without concentrating cutting forces that result in breakage. Its positive rake angle further

reduces cutting forces while improving depth of cut notching resistance. Together with a multi-layer coating with a ZrCN top coat for both extended performance and improved wear identification, the result is the ability to increase speeds or feed rates efficiently, increasing productivity and reducing cycle times.

WIDIA grades WP15CT, WP25CT, and WP35CT are also available in the Universal Roughing geometry to particularly improve performance on steel workpieces. Emphasizing an excellent combination of toughness and cutting performance, WP15CT is universally applicable on all finishing, medium machining and light roughing steel operations, wet or dry, interrupted and non-interrupted.



WP25CT is best applicable on all medium to light roughing operations, wet or dry on interrupted and non-interrupted cuts. WP35CT is the best choice on all roughing and heavy roughing jobs, also wet or dry, interrupted or non-interrupted. These new grades also feature the ZrCN top coating and proprietary post-coat treatment that reduces friction and improves edge toughness as well as functioning as an excellent wear indicator.

“Shops doing a major percentage of turning work know beating the competition involves delivering excellent results reliably,” says WIDIA global product manager John Gable. “The WIDIA Victory turning portfolio is just the kind of tool selection that allows these shops to up their performance to even higher levels.”

*For more information, visit <http://www.widia.com/>.*

*WIDIA-brand products and services have defined innovation in the metalcutting industry for more than 80 years — from the world's first patent for carbide indexable inserts to the development of the world's first coated grades. The WIDIA brand offers a complete portfolio of precision-engineered products and custom solution services. With thousands of milling, turning, holemaking, and tooling systems products available through a worldwide network of authorized distributor partners, you'll find everything you need from one single source.*

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# WEISS' "TIERED-UP" CHASSIS ASSEMBLY

**Features TR1500 Series Rotary Indexing Ring With Large Open Center To Achieve Automation Accuracy, Access, Tooling, And Service Advantages.**

Industry leading specialist for rotary tables and automation, WEISS North America, Inc. (Willoughby, OH), has produced cutting-edge designs in the automation industry for over 45 years. When approached by Alpha Integration, Inc. (Murfreesboro, TN), a manufacturer of turnkey automated assembly, vision and testing systems, to provide a reliable turnkey solution for their 6' tall automotive parts assembly machine, WEISS 'tiered-up' an innovative chassis and indexing table system solution.

In the process of laying out the plan of the machine, Alpha's Senior Mechanical Design Engineer, Sam Westbrooks, knew he wanted an open center indexer to mount the tooling towards the inside of the dial system on a stationary center plate. This design configuration would accommodate ease-of-loading for its 12 load stations, as well as providing clear viewing of the processes and easier maintenance.

Additionally, to facilitate the tooling, the indexer would have to be 5' off the ground; which would require the base frame/chassis to be uniquely structured.

**Tiered-Up / Open-Center Technology:**

The key to the WEISS solution involved the stationary center plate, dial plate, and base frames. These were all manufactured and machined complete by WEISS at their Willoughby, OH facility and delivered to the client as a one-source, preassem-

bled system. This allowed Alpha to build the nest and station assemblies offline so that they could be integrated to the dial system with ease.

At the core of the fully integrated system was the WEISS TR1500 rotary index table ring with a large open center— which offered an extremely low profile design with a high level of accuracy. The TR1500 ring allowed for optimal design space in a robust mechanical design. This also reduced the overall footprint of the machine with improved accuracy and access to parts.

Even with Alpha's machine featuring 12 clip install stations, it proved no problem for the WEISS TR1500 series which offers ring diameters of up to 2,200 mm – providing more than enough scope for coupling with processing stations.

The height limitations of the chassis design were overcome by utilizing one base frame that leveraged two other riser frames to make up the rest of the height. The first riser attached to the top of the base frame and supported the TR1500 index table that featured a 90.5" diameter tool plate. The second riser frame was used to support the electroless-nickel plated steel stationary plate. Ultimately, the frame/riser system design was able to lift the index table up to the specified height requirements, with the final system structure resembling a 'three-tiered cake'.

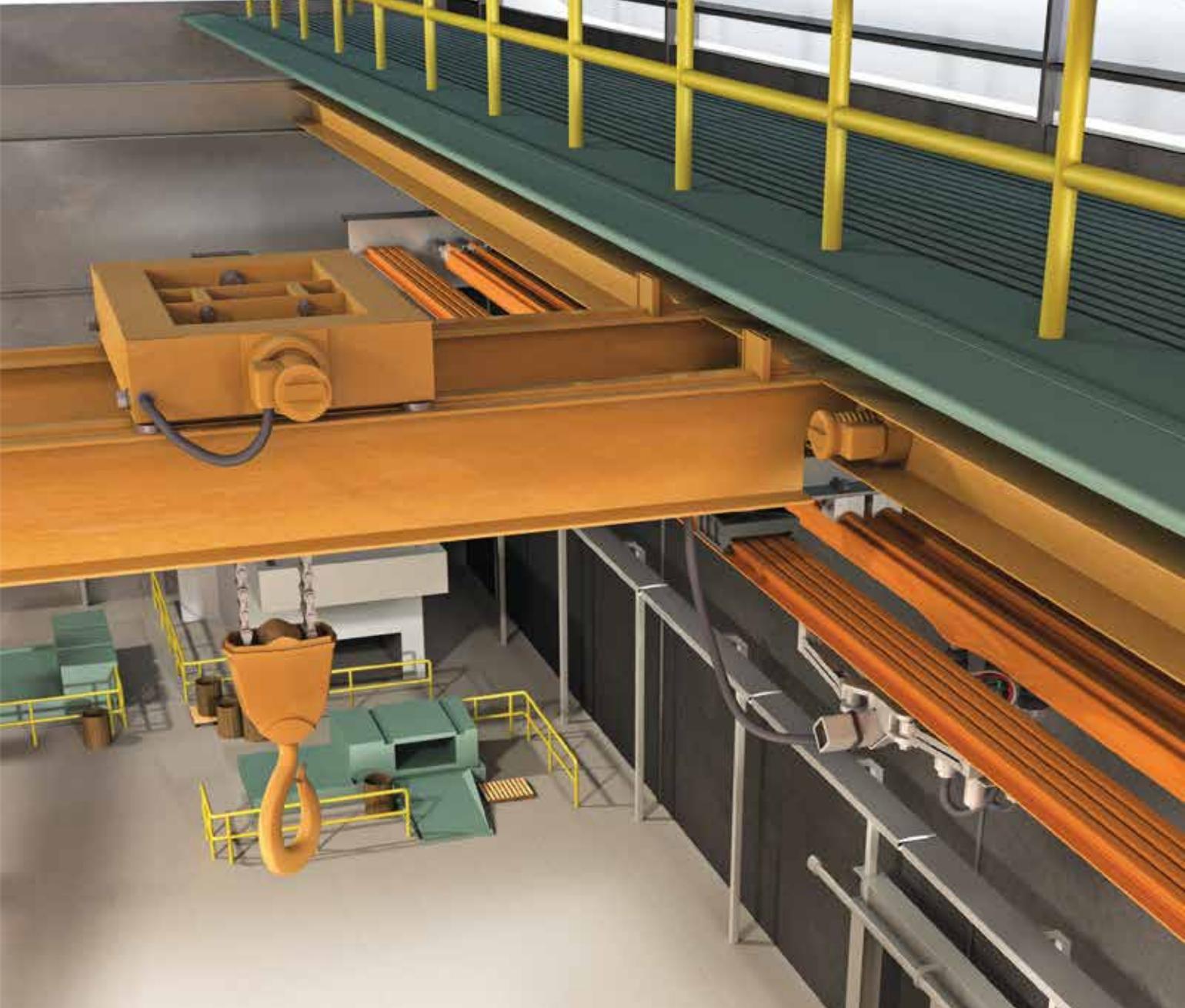
The majority of the machine's 12



stations required a press station to be bolted on top of the 1" thick steel stationary plate. These press assembly stations apply down forces onto the nests that are carried by the index table's aluminum tool plate. To overcome potentially debilitating force of approximately 900 lbs. acting on the 410 lb. center stationary plate and index table, WEISS' unique design leveraged an intermediate riser weldment going through the indexer and bolting to the middle riser frame which by-passed the indexer totally—creating a 'no-forces' solution onto the index table that promotes longevity.

All of the WEISS system's tables and rings offered accurate dowel holes on all mounting surfaces including; the main casting for mounting to the machine base, the rotating dial plate for easy mounting of the tool plate, and on the center stationary plate. Alpha simply transferred WEISS' mounting hole pattern to their tool plate drawing; requiring no adjustment or reaming of dowel holes required at assembly.

With the WEISS dial system design at the centerpiece of the assembly,



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Alpha was able to keep all of the tooling and mounting originating from the interior of the dial assembly—allowing servicing of the system to be much easier. Additionally, because there is no tooling in the way, the dial system is wide open for ease of loading, and allows for an easier view of the entire production process. Even if Alpha had utilized a typical dial system design with a stationary center plate, the loads on the stationary center plates would have been extremely overhung and unstable—unlike what was achieved with the WEISS dial system.

**Conclusion:**

The combination of robust construction and innovative, ‘open-center’ design allowed the WEISS engineering group to provide Alpha with a superior, one-source automotive parts assembly solution—delivering a 26 second cycle time with an index-

ing speed of 2.3 seconds.

Finally, to facilitate the collaborative assembly design effort, WEISS’s engineers also used the same CAD/3D software (Solidworks) platform as Alpha Integration. According to Alpha’s Senior Mechanical Design Engineer, Sam Westbrooks, “It was immensely convenient to send CAD files to and from WEISS to seamlessly share designs. It was like a breath of fresh air to work with a company that ‘spoke our language’ when it came to CAD/3D and design.”

Westbrooks concluded, “By using WEISS for the complete system package, we don’t have to worry about getting plates or base frames made and finished. The system comes complete so the tooling can be installed immediately; which is efficient and convenient. Plus, the delivery times from WEISS were outstanding.”

Currently, three more of the same system configuration solutions are being manufactured and assembled by WEISS for Alpha Integration, Inc.

*Corporate Profile: An integral part of the Weiss global network, Weiss North America (ISO-9001 Certified) leverages over 45 years of reliable world-wide expertise to comprise an integrative, customer-specific approach to its vast array of electromechanical products. Our 100% vertical range of manufacturing ranges from rotary indexing tables, handling systems, and linear assembly systems—providing flexible technology for turnkey solutions that incorporate electronics, mechanical systems, software, and comprehensive engineering support. This enables us to provide pre-installed, intelligent, and highly convenient solutions for the entire field of kinematics.*

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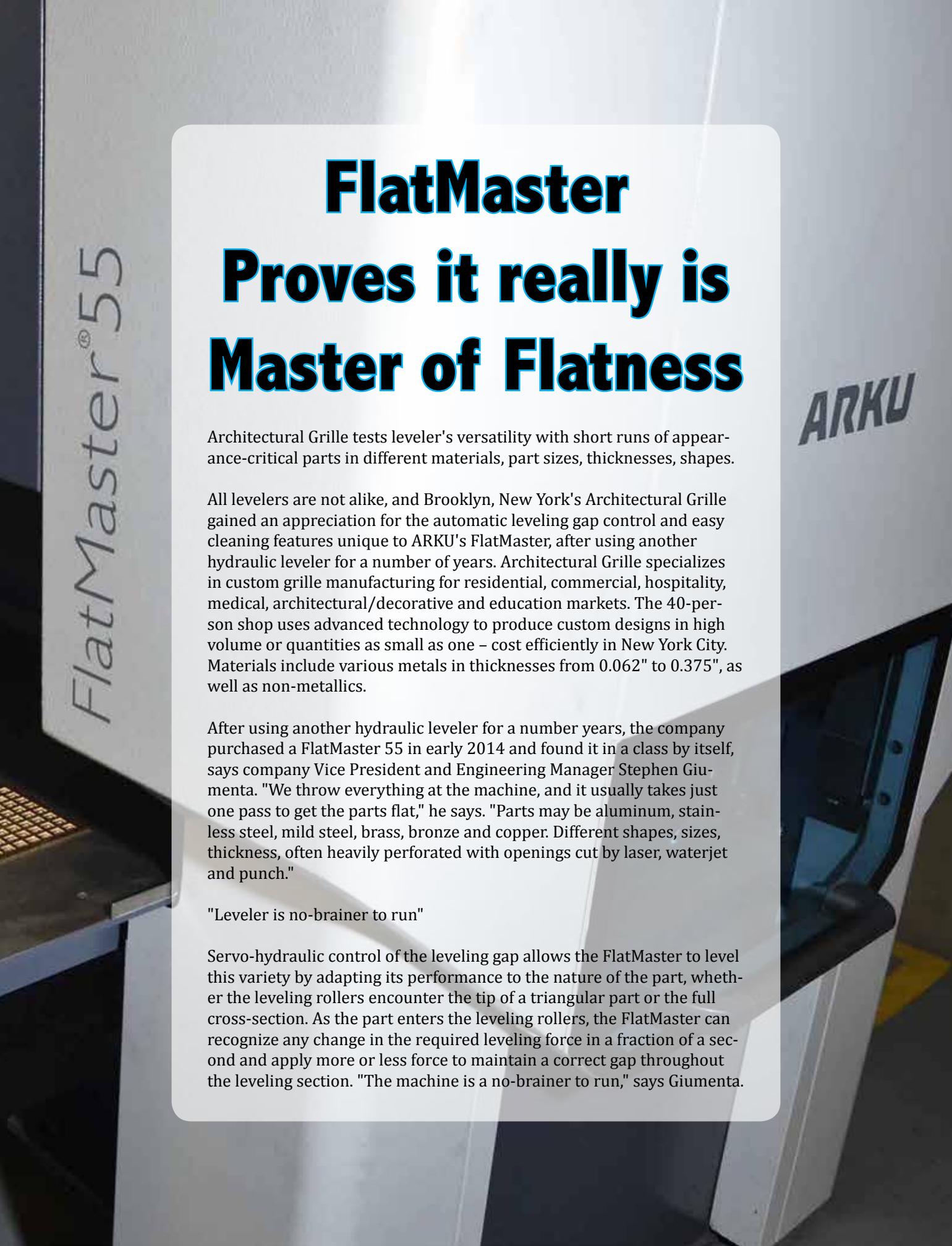
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ARKU

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The background of the page is a photograph of an AR KU FlatMaster 55 hydraulic leveler. The machine is white with blue accents. On the left side, the text "FlatMaster®55" is printed vertically. On the right side, the "AR KU" logo is visible. The machine's rollers and the part being leveled are partially visible.

# FlatMaster Proves it really is Master of Flatness

Architectural Grille tests leveler's versatility with short runs of appearance-critical parts in different materials, part sizes, thicknesses, shapes.

All levelers are not alike, and Brooklyn, New York's Architectural Grille gained an appreciation for the automatic leveling gap control and easy cleaning features unique to AR KU's FlatMaster, after using another hydraulic leveler for a number of years. Architectural Grille specializes in custom grille manufacturing for residential, commercial, hospitality, medical, architectural/decorative and education markets. The 40-person shop uses advanced technology to produce custom designs in high volume or quantities as small as one – cost efficiently in New York City. Materials include various metals in thicknesses from 0.062" to 0.375", as well as non-metallics.

After using another hydraulic leveler for a number years, the company purchased a FlatMaster 55 in early 2014 and found it in a class by itself, says company Vice President and Engineering Manager Stephen Giumenta. "We throw everything at the machine, and it usually takes just one pass to get the parts flat," he says. "Parts may be aluminum, stainless steel, mild steel, brass, bronze and copper. Different shapes, sizes, thickness, often heavily perforated with openings cut by laser, waterjet and punch."

"Leveler is no-brainer to run"

Servo-hydraulic control of the leveling gap allows the FlatMaster to level this variety by adapting its performance to the nature of the part, whether the leveling rollers encounter the tip of a triangular part or the full cross-section. As the part enters the leveling rollers, the FlatMaster can recognize any change in the required leveling force in a fraction of a second and apply more or less force to maintain a correct gap throughout the leveling section. "The machine is a no-brainer to run," says Giumenta.

"You set the material thickness, put in a distorted part, and it comes out flat. We had it installed and began training on it in one day, and we were running parts the next day."

Blemishes caused by dirty leveling rollers were another issue with Architectural Grille's earlier machine because it was extremely difficult to clean. "We had to bring in a rigger to tear down the machine so we could get at the roller section," Giumenta says. "If a machine is difficult to maintain, it won't get much maintenance. Blemishes on our parts require additional processing, so we clean the leveling rollers regularly. With the FlatMaster, one person can remove and clean the rollers in a few minutes." He adds that the machine is also electrically efficient and quiet. "The noise is so low you can't tell it's running."

Architectural Grille's part volume keeps the leveler busy about five hours a day. The excess capacity allows the company to solicit contract leveling from fabricators in the region. "A leveler of this caliber is an unusual asset to have in a smaller fab shop, so shops in our area are starting to take advantage."

#### About ARKU

ARKU, founded in 1928, is a world leader in roller levelers and press feeding technology with the world's most

extensive range of high-capacity and precision levelers, and with nearly 50 years' expertise in the field. With its headquarters in Baden-Baden, Germany, and ISO-certified facilities in Kunshan (China) and Cincinnati (USA), the business operates in almost 30 countries world-wide. The product range comprises precision levelers for parts, cut-to-length and slitting lines, press feeding lines and coil preparation lines for roll formers. ARKU provides engineering expertise to many manufacturing industries, including automotive, railroad equipment, shipbuilding, construction and furniture, as well as laser job shops and others.



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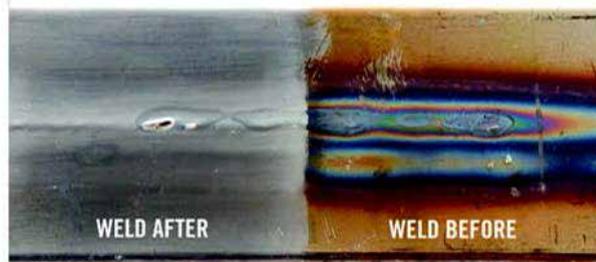
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The ICH is located immediately above the machine's main spindle, but slightly offset in the Y and W/Z axes to avoid tool interference. The 45-kW/60-hp (S6-40%) contouring spindle for HMCs handles parts up to 540 mm (21.3 in) ID and 340 mm (13.4 in) OD. It is available with standard Kennametal KM80™ or Sandvik Coromant® Capto C8 tool interfaces, and accommodates tools as long as 600 mm (23.6 in), weighing up to 18 kg (39.6 lb). Tools are loaded via the machine's automatic toolchanger for faster processing without operator involvement. The W/Z-axis live boring spindles can use 50-taper tools. With an auto coupler, the Giddings & Lewis HMC Series handles programmable boring bars up to 750 mm (29.5 in) long and 50 kg (110 lb). Live spindle travel is 800 mm (31.5 in) for all machining center models.



"The combination of the U-axis head and main W/Z-axis milling/boring spindle provides boring and turning capabilities in a single multi-tasking machine," said Fives Cincinnati Product Manager Ken Wichman. "The range, power, accuracy and tool-handling capability of the ICH provide a much wider range of processing capabilities than possible with contouring attachments or other options. The integrated head is much more rigid than attachments bolted on or held by the spindle taper, resulting in superior part quality, surface finish and dimensional accuracy."

A touch probe can be used in the boring spindle or on the HMC Series an optional auxiliary probe is available for in-process or post-process measurement of part features. Standard services, such as coolant supply, are plumbed through the contouring head to eliminate manual intervention and ensure maximum tool life.

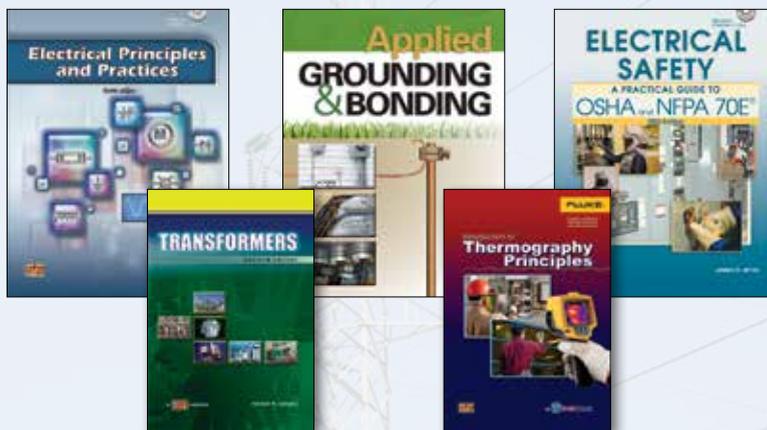
For additional information, see: [www.fivesgroup.com](http://www.fivesgroup.com).

About Fives in Metal Cutting and Composites

Fives designs and supplies machine tool and complete manufacturing solutions in a broad range of industrial sectors.

With a strong foundation based upon renowned brands such as Cincinnati, Giddings & Lewis, Forest-Liné, Liné Machines and Rouchaud, Fives is recognized as the preeminent provider of outstanding manufacturing solutions which are at the heart of its customers' performance.

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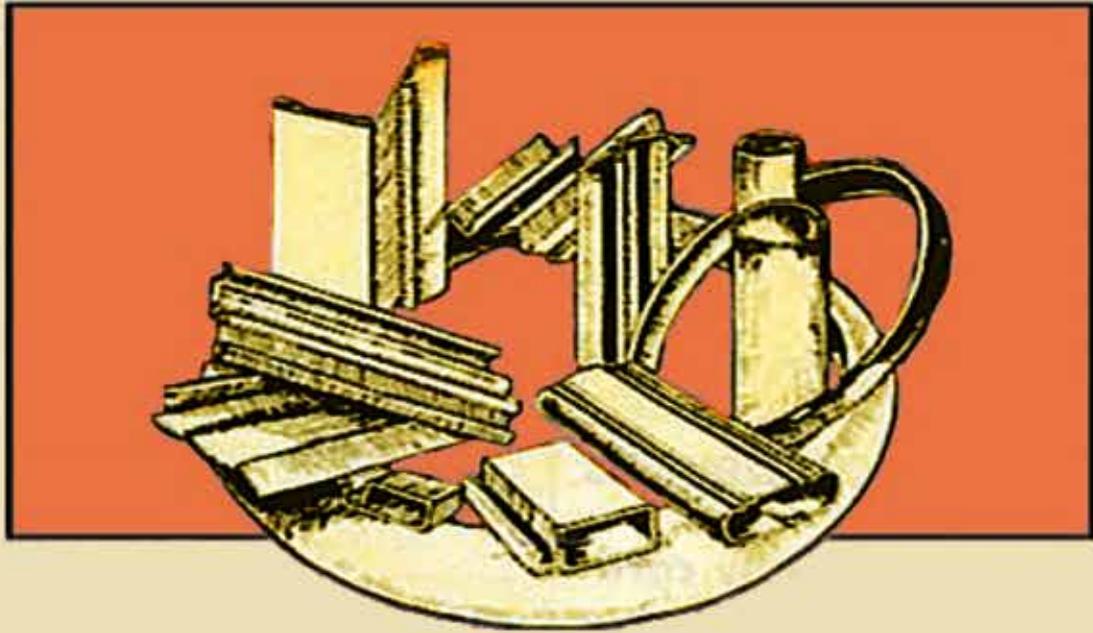
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Verti-Lift introduces Auto-Hite Carts, which automatically adjust so that work-pieces are at the optimal operator height. Designed to maximize safety, productivity, and ergonomics, these spring-loaded, self-leveling products feature a 22"-26" window of vertical travel making them ideal for any associate or parts height requirement. These ergonomic carts contain no hydraulics, do not require electric or air, and require minimal maintenance. They are ideal for assembly line or sub-assembly operations for a wide range of industries.

Standard deck sizes are 20" W x 20" L through 20" W x 30" L, with custom sizes available. Capacity is up to 1,000 pounds. Featuring a "J" hook spring bracket design, springs can be easily added or removed in seconds. These units come standard with 5" casters to ensure ease of mobility. They can also be floor mounted for work cell applications.

Video demonstrations of the Verti-Lift Auto-Hite self-leveling carts can be seen on YouTube (search Verti Lift). They are made in the USA and available from material handling distributors nationwide.

Verti-Lift manufactures a complete line of standard and custom materials handling and ergonomic equipment including Hydraulic and Pneumatic Scissor Lift Tables, Hydraulic and Pneumatic Tilters, Hydraulic and Pneumatic Work Positioners, Turntables, Operator Lifts, 2-Post Vertical Lifts, Self-Leveling Carts, Platform Trucks, and Work Stations and much more. All products are made in the USA and are available through material handling distributors nationwide. For additional information visit [www.verti-lift.com](http://www.verti-lift.com), Google+ Verti-Lift, Inc., by e-mail [sales@verti-lift.com](mailto:sales@verti-lift.com), call (502) 361-0180, or write Verti-Lift, Inc., 5559 National Turnpike, Louisville, KY 40214.

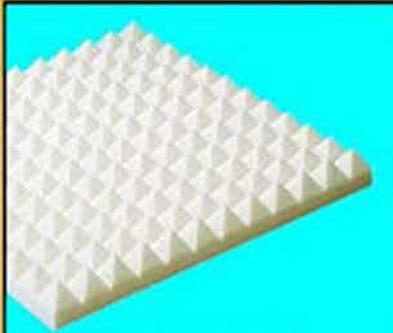




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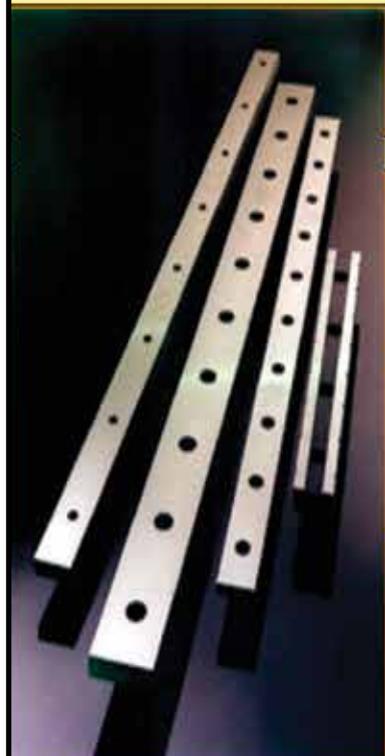
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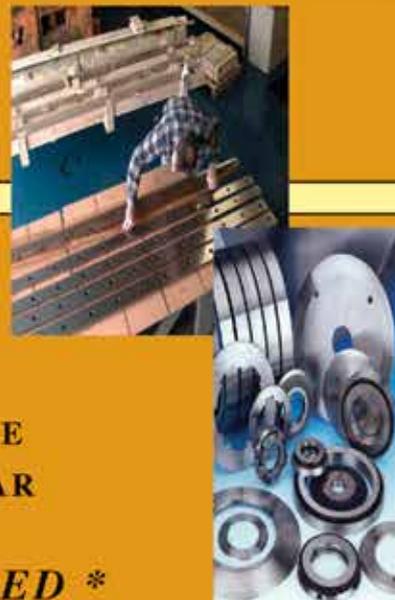
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