



FOR IMMEDIATE RELEASE:

WEISS' "TIERED-UP" CHASSIS

ASSEMBLY: FEATURES TR1500 SERIES ROTARY INDEXING RING WITH LARGE OPEN CENTER TO ACHIEVE AUTOMATION ACCURACY, ACCESS, TOOLING, AND SERVICE ADVANTAGES.

Willoughby, OH-December 2014

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 Westbrook, 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, preassembled 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.

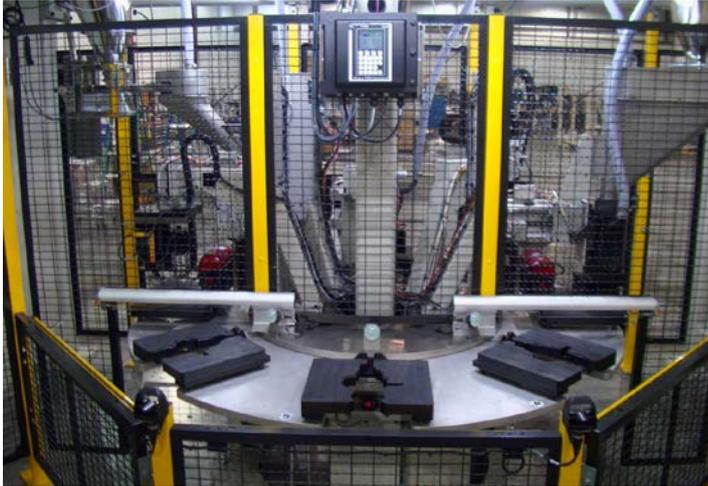
Even with Alpha's machine featuring 12 clip install stations, it proved no problem for the WEISS TR1500 series which offers ring diameters of up to 2,200 mm – providing more than enough scope for coupling with processing stations.

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, 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:

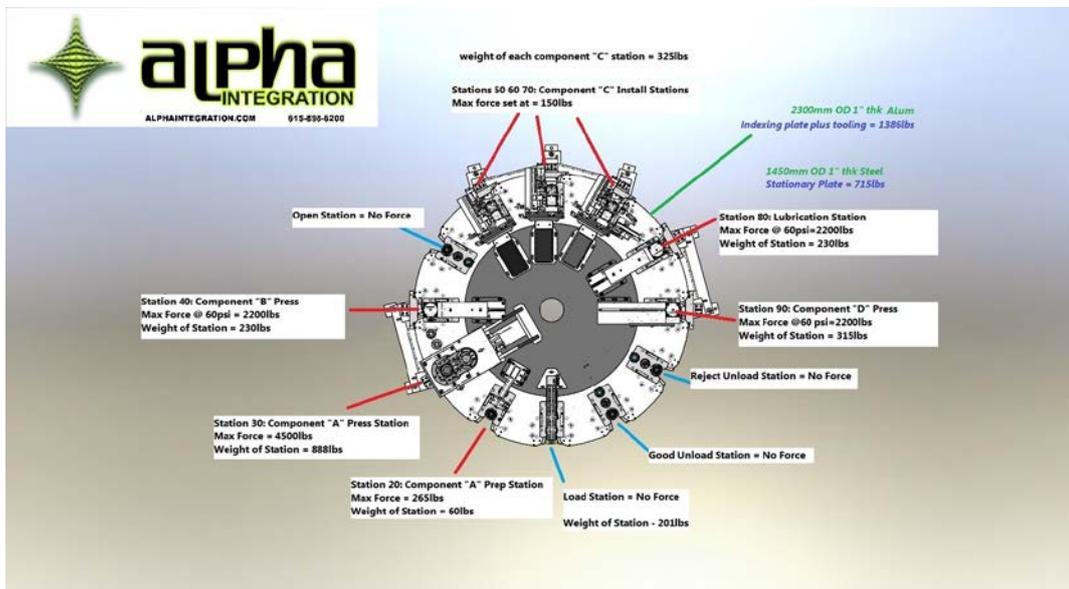
The combination of robust construction and innovative, 'open-center' design allowed the WEISS engineering group to provide Alpha with a superior, one-source automotive parts assembly solution—delivering a 26 second cycle time with an indexing speed of 2.3 seconds.



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.

WEISS / ALPHA INTEGRATION Contact:

Bill Eppich | Vice President | WEISS North America, Inc. | 888-934-7762 | beppich@weissna.com
Kendall Barrett | President | Alpha Integration, Inc. | 615-898-6200 | sales@alphaintegration.com

Editorial & Photo Contact:

Ray Farrar | President | Method Media LLC | 216-861-0862 | rayf@methmedia.net

©2014 WEISS North America, Inc. | All rights reserved