

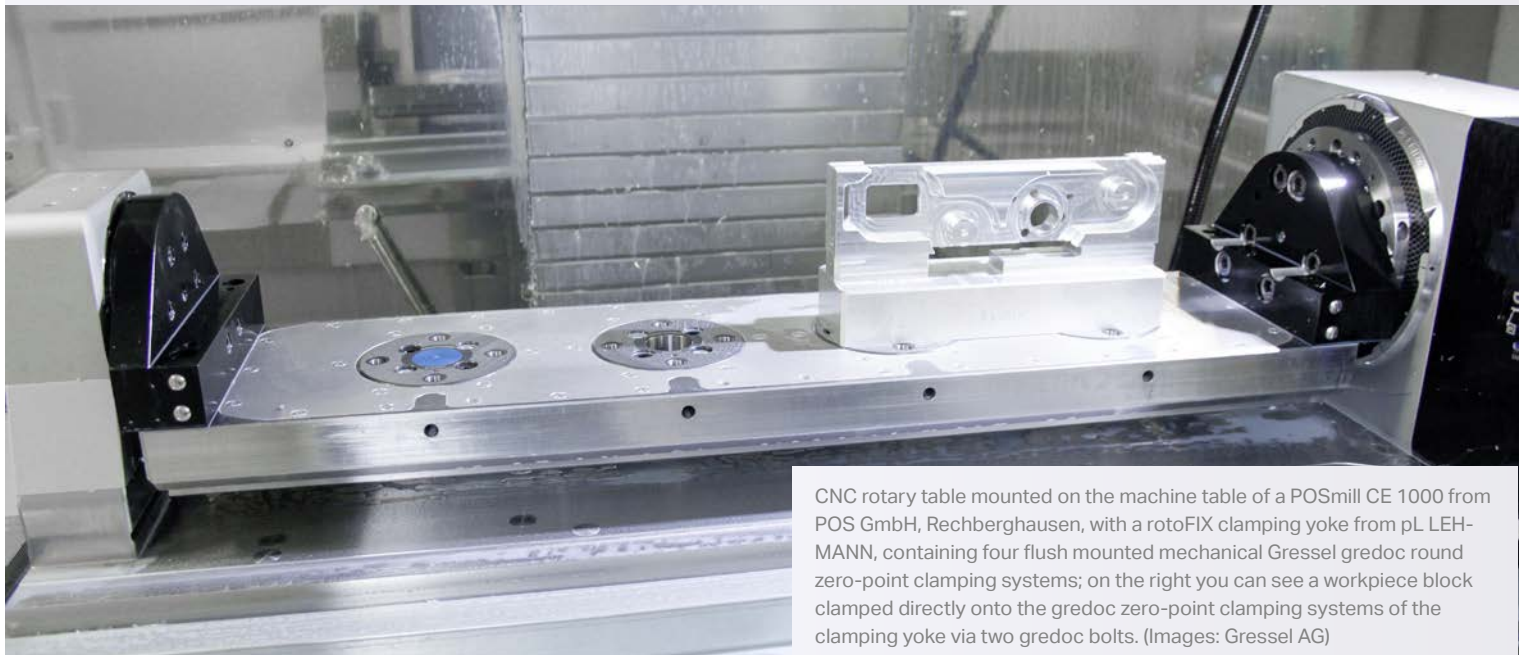
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Swiss Rotary Table Technology

NEWSLETTER

Flexible workpiece clamping technology for the production of parts

rotoFIX



CNC rotary table mounted on the machine table of a POSmill CE 1000 from POS GmbH, Rechberghausen, with a rotoFIX clamping yoke from pL LEHMANN, containing four flush mounted mechanical Gressel gredoc round zero-point clamping systems; on the right you can see a workpiece block clamped directly onto the gredoc zero-point clamping systems of the clamping yoke via two gredoc bolts. (Images: Gressel AG)

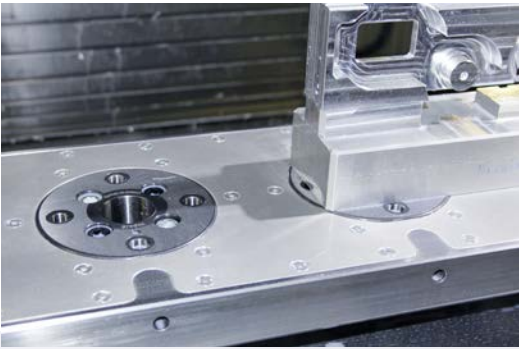
Workpiece clamping technology powers productivity increase

How ASP Automation GmbH uses flexible Gressel workpiece clamping technology to ensure maximized machine utilization and thus increases production productivity.

The word «flexibility» runs like a thread through all areas of ASP Automation GmbH, D-91757 Treuchtlingen. Flexibility is the credo of ASP, with regard to very creative complete solutions in production and assembly automation as well as in special machine construction. Furthermore, ASP's own products, the ASP aluminum profile modular system and Vario buffer conveyor belts, are characterized by maximum flexibility in application and use. In addition, the production of parts on customer order as well as for ASP's own products is organized in a high-



rotoFIX clamping yoke system from pL LEHMANN.
(Image: pL LEHMANN)



A mechanical Gressel gredoc zero-point clamping system flush mounted in the clamping yoke; the clamping and unclamping process is carried out by simply turning or opening the Allen key through the front bore.

ly flexible manner, which of course also includes the efficient multi-machine operation by highly qualified personnel. Founded in the year 2000 by the current owner and managing director Werner Schramm, a strictly technology-driven company has developed from small beginnings. The company deals with the development and construction of automation solutions as well as special machines on customer order on the one hand and with the development, construction, and sale of our previously mentioned own products on the other hand. ASP now has 18 employees, 10 of whom are in the area of mechanical manufacturing alone. Contrary to the frequently observed trend towards a pure system integrator that primarily relies on components available on the market, Werner Schramm relies on a high degree of in-house production, which is currently around 90%. And there is a good reason for this: «As a special machine manufacturer and manufacturer of our own products, we have to react very flexibly to customer wishes and are dependent on both the best quality and a high degree of schedule reliability for problem-free assembly of modules and equipment. In order to guarantee this and to be able to act flexibly and quickly, we decided at an early stage to manufacture construction parts ourselves whenever possible and reasonable and to commission efficient partners to supply standardized or standard components.»



The different equipment of the rotoFIX clamping yoke from pL LEHMANN using three Gressel C2 125 centric clamps in this case; thus short or long workpieces can be clamped and completely machined with 4 axes.

New CNC machining center vs. existing work-piece clamping technology

With increasing business volumes as well as the growing order volume, especially for its own product Vario buffer conveyor belts, ASP soon encountered capacity problems with the intensive evaluation and subsequent procurement of another new 3-axis CNC machining center. The planned solution of equipping a 3-axis CNC machining center with a large working range (X-axis travel = 1000 mm) with a CNC rotary table and rotoFIX clamping yoke from pL LEHMANN as the 4th axis instead of procuring an expensive 4- or 5-axis machining center turned out to be absolutely right, based on the range of parts to be machined. When the CNC was purchased, Werner Schramm already predicted that the performance capability of the CNC machining center would reach its limits with conventional work-piece clamping devices and therefore contacted the Swiss specialist for workpiece clamping technology, Gressel AG, CH-8355 Aadorf, at this point. After a visit by Günther Hirschburger, Sales Engineer Germany South at Gressel AG, a solution was proposed that was convincing in every respect and on the basis



Complete equipment of the clamping yoke with, in this case, four Gressel C2 125 centric clamps for successive 4-axis machining of identical or different workpieces.

of which an order was placed for the supply of various components from the Gressel clamping technology modular system. Specifically, these are several gredoc mechanical zero-point clamping systems in square and round versions, several C2 125 centric clamping systems, and finally several gripes single clamping systems.

Individual, cost-effective solutions with the Gressel modular system

With these clamping technology components, Werner Schramm and his colleagues realized a highly flexible universal clamping system. Depending on the design, configuration, and equipment, this allows both rational 3-axis machining on a machine table equipped with an adapter plate as well as 4-axis (complete) machining after the assembly of a CNC rotary or tilting table. However, Werner Schramm and the machine operators came up with even more ideas to minimize the set-up/con-



On the right Werner Schramm, Managing Director ASP Automation GmbH, and on the left Günther Hirschburger, Sales Technician Germany South at Gressel AG, in front of the 3-axis CNC machining center of ASP Automation GmbH which has been upgraded for 4-axis machining.

ble. We hardly need any special clamping devices any more and, thanks to the continuous installation of Gressel's zero-point clamping systems, we are always equipped to react quickly to part requirements. We will continue to follow this path in the future, because we want to make maximum and flexible use of the existing performance of the machines.»

version and assembly effort as well as the non-productive idle times caused by machine downtimes. Namely, by creating the aforementioned machine table adapter plate and placing five gredoc mechanical zero-point clamping systems angularly on it. These five zero-point clamping systems accommodate either the CNC rotary/tilting table mounted on a base plate or, if required, one to five gripes single clamps or up to five C2 125 centric clamps. It is also possible to equip large workpieces with gredoc bolts and clamp them directly onto the adapter plate. However, the use and application are even more flexible, because four gredoc mechanical zero-point clamping systems are angularly embedded in the tilting axis base plate of the CNC rotary/tilting table and, depending on the requirements or machining operations, these also accommodate one or up to four C2 125 centric clamps as well as blank blocks provided with gredoc bolts, so that they can then be machined in 4-axis (complete) mode.

Summary

In conclusion, Werner Schramm commented on the possible applications and uses of the Gressel clamping technology modular system at his company: «With the support of Gressel and Günther Hirschburger, we have found optimal clamping technology solutions for machining a very wide range of parts with high flexibility and increased productivity. Depending on the quantity, workpiece requirements, and running time, we machine small to medium-sized individual parts, small and medium series, or even large frames and base plates using 3 to 4 axes. This is done on the basis of one and the same compatible workpiece clamping technology in single or multiple clamping, which in many cases makes multi-machine operation and use possi-

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