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Thema : Anwenderbericht Fa. LARO NC-Technik GmbH

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**Flexibility und surface quality - Handtmann HBZ Trunnion fulfils the most important decision criteria of the machining specialists
LARO NC-Technik GmbH**

„You never know what comes next“, says Elmar Müller, managing director of LARO-NC Technik GmbH, located in Illmensee/South of Germany, „therefore we need machines that provide not only constantly good quality and productivity, but also machines which we can flexibly apply for 5-axis machining operations.“ According to Elmar Müller this is one of the main features which characterizes the thirty-people company from Upper Swabia: Due to its machinery and know-how the company is extremely flexible and therefore equipped for a wide range of machining requirements. In terms of machinery, Handtmann plays a significant role for LARO as they already use three Handtmann machines in their production whereas a fourth machine – the second HBZ Trunnion – will soon be installed in Illmensee. For LARO, the Handtmann machines are machining centres which fulfil these requirements of quality, productivity and flexibility to a high degree.

The company was founded in 2001 after the merger of the associated companies Langer Group GmbH & Co. KG und Paul Rothmund Kunststoffverarbeitung GmbH. From the early beginnings on LARO NC-Technik GmbH had a clear focus on precision machining of large parts. The company is a subsidiary of the Langer Group with currently 140 employees which is successful in areas like mould- and die, tool making, cubing, prototype construction, plant construction, test equipment construction as well as serial production of injection moulded parts for automotive, machine construction, hydropower and aerospace since 1975. For LARO, “serial production” means from small to large series; individual parts like freeform components, tools, models, test equipment prototypes are their core business. Nowadays LARO is known for the contract manufacturing of complex workpieces in a wide range of materials including aluminium, steel, tool steel, titanium, bronze, copper, GFRP and CFRP as well as further compounds. Manufacturing of individual large workpieces also belongs to the company’s core business in terms of cubing assemblies. In order to check the add-on components such as electric window regulators and headlights, the future body of car models is simulated in the pre-series stage by machining all body parts of solid aluminium. Often, the chip removal rate is more than 90 per cent. Also for this reason LARO relies on “flexibly applicable HSC high speed cutting machining centres” and is using already since their foundation in 2001 machines of the nearby Handtmann A-Punkt Automation GmbH in Baienfurt as production manager Markus Meschenmoser states.

LARO and Handtmann foster a long and good customer-supplier relationship: The Handtmann UBZ NT universal machining centre which was delivered to LARO in 2001, the year of their foundation, was one of the very first machines in LARO’s facilities. At that time Elmar Müller, managing director of LARO NC-Technik GmbH was looking for a German machine constructor who can provide good service and accidentally found Handtmann from Baienfurt who convinced the customer by quality and reasonable prices. Flexibility in terms of material has been equally important back then and today: the machine to be purchased should have been able to machine aluminium and finish steel. Even after 13 years, the UBZ NT is still convincing today. Just recently panels for the aeronautics have been machined on the UBZ NT. A few years later Handtmann convinced again: Since 2009 the machining specialist LARO is producing on a UBZ HP 300/200 with pallet automation. With three pallets in total (sized 3x2 m) the machine’s use is primarily in machining large workpieces unmanned for several hours. LARO’s decisive criteria for this machining centre were primarily: chip removal rate, flexibility (material:

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aluminium and steel), the large tool magazine (250 slots in total) and the pallet system. "Automation", states Müller, "is getting more and more important. The ultimate goal is that machines run 24 hours and that we are able to set-up in advance for weekends and nights. This is a decisive criteria where manufacturers stand out from each other."

The current machinery of the Upper Swabian machining specialist comprises of nine machines whereas three Handtmann machines are in use and a fourth one will be installed by the end of 2014. Anyway, LARO won't just commit themselves to Handtmann only: "We purchase what suits best." The purchasing process of the company follows a defined strategy with clear selection criteria that are recorded and evaluated in a matrix. Highest weighting is on flexibility a machine is providing in terms of different materials as "you never know what comes next", Elmar Müller states regarding to future orders. The machinery has to be broad enough in order to be able to provide solutions for a huge variety of requirements but also specialized to be able to deliver premium quality. LARO NC-Technik GmbH seems to succeed pretty well in this balancing act. Further selection criteria for the machines are good ergonomics with good accessibility and set-up possibilities, high surface quality without steps and a reliable machine for 5-axis simultaneous machining of complex workpieces in different materials. Reaction time and quality of service departments is also a highly weighted criterion. LARO states to be satisfied with Handtmann in all these criteria.

As a result of all these factors LARO decided to purchase a 5-axis HPC horizontal machining centre HBZ Trunnion 80, the smallest machine of the Handtmann HBZ Trunnion series and the first horizontal machining centre for LARO. Besides the selection criteria of the LARO-purchase-matrix the machining specialist sees main advantages in the high machine rigidity, easy operation, above-average acceleration of 60 m/min and the machine's flexibility. Therefore the spindle with 18,000 rpm, max. 31 kW and max. 200 Nm plays an important role. According to production manager Markus Meschenmoser machine and spindle suit and the spindle power can fully be used due to the machine rigidity. Due to the universal spindle the machine is able to machine workpieces of various materials from max. 850 mm Ø and 630 mm height. Horizontal machining plays a significant role as the large amount of chips which result from high speed cutting does not influence the machining process at all due to horizontal machining. Also the chip conveyor is large enough so that the customer can "really make chips" which can easily be transported out of the workzone. LARO NC-Technik in Illmensee uses the HBZ Trunnion 80 flexibly for 5-axis machining of aluminium and steel, primarily complex parts with deep pockets.

By milling a complicated test part which LARO is giving to all manufacturers in the selection process the Handtmann HBZ Trunnion 80 had to convince in terms of surface quality. LARO needs „workpieces that leave the machine in optimum condition without any manual reworking to be done.“ CNC programs, detailed milling strategies including cutting data and tools are provided by LARO. Surface quality and machining time are the predominantly decisive factors within this process.

TCO of Handtmann's HBZ Trunnion 80 have been evaluated as very positive by providing training, service and a variety of measures for long-term machine availability. Additionally further factors such as spindle speed and spindle power as well as surface quality needed are important for the matrix evaluation. Only those machine manufacturers whose machines convinced in the matrix make it to the final selection.

Handtmann was able to succeed in this purchase selection process four times already. The latest project is a HBZ Trunnion 160 (which is the largest machine of the HBZ Trunnion series) with pallet automation. LARO is convinced of the HBZ Trunnion machine concept and has made positive experience with automated pallet solutions provided by Handtmann over the years. In accordance with the motto

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“floor is money” the HBZ Trunnion 160 with pallet system suits well into the investment and hall plans of LARO. Long run-time, easy operation, flexible use for workpieces of different materials with maximum diameter up to 1,700 mm and a maximum height of 1,000 mm as well as the high speed spindle with maximum 18,000 rpm, 200 Nm and 31 kW were the convincing arguments besides the advantages already mentioned and the general HBZ Trunnion horizontal machining centres’ advantages.

The machines of the Handtmann HBZ Trunnion series are of multi-purpose use in 5-axis horizontal machining of aluminium, steel, titanium and other common materials for light and heavy machining. High power and performance on small footprint, a broad repertoire of insertable spindles in order to choose the best suitable spindle for the applications as well as a very rigid machine design are providing for productivity and process stability. High workpiece accuracy is being achieved by the double clamping and drive system of the X-axis with upper and lower guidance, wear-free direct drives in the A- and C-axis as well as linear axes that are independent of the workpiece weight. The application field of the horizontal machining centres is primarily milling and mill-turning of structural parts for aerospace and automotive as well as a huge variety of workpieces in mould- and die, tool making, machine construction, energy technologies. Maximum table load of the “small” HBZ TR 80 is 1.2 t whereas the table of the “largest” HBZ TR 160 can be loaded with up to 2.8 t. Concerning control systems Handtmann is offering either Siemens 840D SL or Heidenhain TNC640 for the three machine models of the HBZ Trunnion series. Good ergonomics when it comes to accessing the workpiece and insight into workzone are still given, also when installing an automation system.

To summarize the demands LARO has on their machine suppliers the following aspects are significant: They need 5-axis machining centres for a variety of workpieces in terms of material (tool steel, steel, aluminium, hardened steel, bronze, copper), size, weight up to 1 ton, complex parts with deep drill holes and pockets. LARO requires a machine availability of 96%. With the HBZ Trunnion Handtmann A-Punkt offers a machine concept that fulfills all these requirements.

Technical functionality, coverage of the variety of requirements, long-term good experience in terms of reliability of machines and service were the main decisive factors why LARO just purchased an additional Handtmann HBZ Trunnion machine. This proves that with this machine series Handtmann offers a suitable solution for mold- and die which primarily stands out with flexibility, productivity, dynamics and quality. Consequently, LARO NC-Technik GmbH situated in Illmensee/Southern Germany will in total have four Handtmann machines in production by the end of 2014: two universal machining centres: UBZ NT, UBZ HP 300/200 with pallet automation system and two horizontal machining centres out of the HBZ Trunnion series: HBZ TR 80 and HBZ TR 160.

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Bildmaterial – If you need these pictures with higher resolution or a broader selection of pictures please just contact us at any time.

	
<p>Pic_1: LARO-NC Technik GmbH: Managing director Elmar Müller and production manager Markus Meschenmoser.</p>	<p>Pic_2: Test part of LARO which all machine constructors must machine during the purchase process following a defined milling strategy. Only those companies achieving the required surface quality will have the chance for the order. Premium-quality surfaces are of top priority for LARO NC-Technik GmbH as machining specialist.</p>
	
<p>Pic_3: HBZ TR 80 – the first horizontal machining centre at LARO. For complex applications in aluminium, steel, tool steel, hardened steel, titanium and many more).</p>	<p>Pic_4: HBZ Trunnion 160 – the largest machine of the HBZ Trunnion series – will soon complement LARO’s machinery.</p>
	
<p>Pic_5: Available with optional turning function! The turning function expands the application area of the 5-axis horizontal machining centres HBZ Trunnion. See here: HBZ TR 80 T.</p>	