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Automated clamping technology

Optimized technologies and processes always increase the productivity levels of manufacturing companies. This also applies to centric clamping vises, which are used for the stationary clamping of round and angular workpieces in conjunction with the most diverse machine tools. Based in Sontheim, Germany, Röhms specialises in clamping and gripping technology, and has several years' worth of high-level expertise in this domain. The newly-improved KZS centric clamping vises are well-suited for, among other things, 6-sided machining involving two clamping operations; these devices stand out due to a series of product advantages. In addition to a compact structure and a high degree of repetition accuracy, they deliver high clamping forces of up to 55 kN, an increased clamping range of 20% and a reduced interfering contour for an optimal chip flow. Several flexible applications are possible - This applies in particular to scenarios involving the use of the devices in 3-axis, 4-axis and 5-axis machining centers, as well as all the usual zero point clamping systems.

From the user's point of view, this area offers the largest potential for optimization. Röhms new KZS centric clamping vises and Easylock zero point clamping system are ideally-suited for automated processes. Both of the products in this range can be operated either pneumatically or hydraulically (e.g. with the help of the machine controls). In particular, this also means that they are ideally-suited for scenarios involving the robot-assisted workpiece loading operations associated with machine tools. This combination offers large cost-saving opportunities: For example, one or two KZS clamping blocks can replace a large number of manual vises in automated procedures. How does this work? The Röhms KZS can be loaded directly into the

machine by a robotic arm. This means that it is not necessary for an operator to pre-position the workpiece outside the machine with an extra clamping device.

Furthermore, a separate manual vise needs not be available for each workpiece.

When combined with a zero point clamping system, such an arrangement makes it possible to drastically shorten cost-intensive set-up times. The South German specialists can even adapt their centric clamping vices to other manufacturers' zero point clamping systems. The direct benefits for the user are shorter set-up times, a better utilisation of machine times and a significantly higher level of productivity.

In case of the KZS devices, the high-precision wedge hook system results in superior part quality and a high level of process reliability. Furthermore, an improved lubrication solution ensures that the clamping forces always remain at the highest level. Consequently, the clamping blocks are also well-suited for sophisticated milling operations associated with a high material removal rate, high cycle numbers and minimal production tolerances. The optional integrated stroke sensor serves to control the clamping operation and guarantees an optimal monitoring of the processing.

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Image 1: Productive combination: Röhms KZS centric clamping vices guarantee process-reliable workpiece clamping in the tightest of spaces. When combined with zero point clamping systems, they offer substantial cost-saving opportunities in case of automated processes (image: Röhms).



Image 2: In addition to a compact structure and a high degree of repetition accuracy, the KZS centric clamping vices deliver high clamping forces of up to 55 kN, an increased clamping range of 20% and a reduced interfering contour for an optimal chip flow (image: Röhms).