

Diebold Workpiece Clamping: Step by step to higher productivity

Diebold offers Zero Point Clamping Systems, pallets and vices from different manufacturers, each ideal for your application in milling, EDM and measuring.



Parotec pallet with vice



EROWA - Collet chuck and clamping bolt



Pallet with increase, vice and clamping bolt



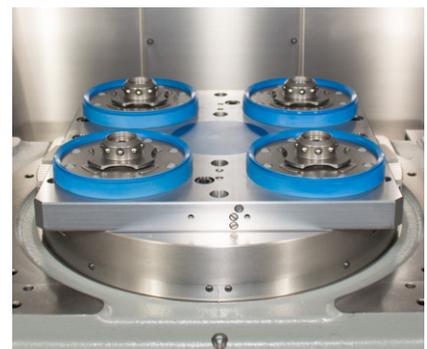
Precision Vices

Step by step to higher productivity

Your machines bring the best profit when they run in multiple shifts, during breaks and night hours. And even unmanned on weekends the chips should fly. Delivery times and production costs are falling. Even when manufacturing small batches or individual parts, Zero Point Clamping Systems will immediately lead to cost reduction. Many customers tell us afterwards that they should have implemented these systems much earlier if they would have known about the chance for increase of productivity and output. To reach this goal, all manufacturers need a long-term production concept for flexible manufacturing. We will assist you in the introduction of highly profitable clamping systems. The concept will be transferred in well-proportioned steps and fits perfectly into the „Industry 4.0“ strategy of any manufacturer.

Systematic palletizing and clamping

Zero Point Clamping Systems are used for quick and precise loading of your parts. By integrating a Zero Point Clamping System on all machine tools, downtimes are virtually eliminated even when parts are moved to other machines with the identically clamped part for production capacity reasons. The i4.0 strategy of each company must deliver a system that the clamping devices can be identified by a chip or QR code and the clamping state and the Zero-Point of the workpiece are reported to the machine via this code. That sounds complicated at first but is easy to implement. We can supply the necessary software components at reasonable costs since we are a manufacturer and not a software house. We know what the industry needs and how important the ROI is. We supply Zero Point Clamping Systems from Parotec, Erowa and other manufacturers. Since we are working brand-independent, the customer benefit is always the most important for us. In any case we can offer the best solution for the customer`s application. Manufacturers or their distribution partners always rely on their own brand and system and cannot always offer the best suitable clamping device.



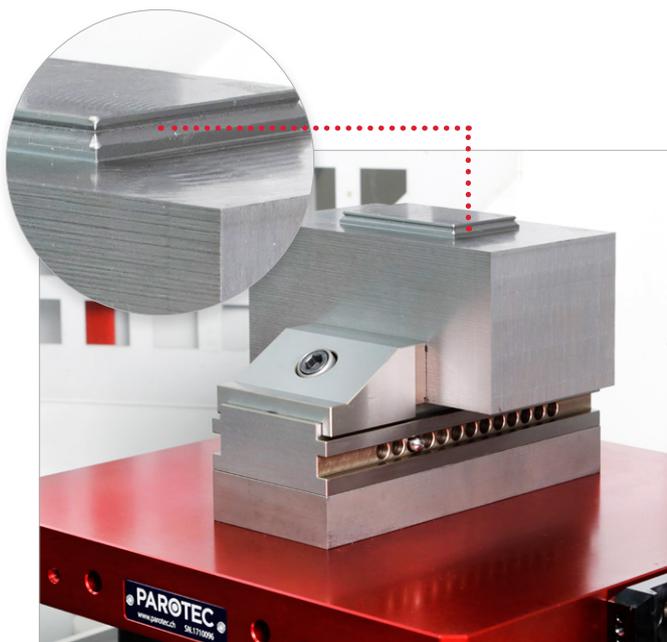
Parotec - Zero Point Clamping System / Power Grip System

Diebold PNS Precision Vices for multi-side machining

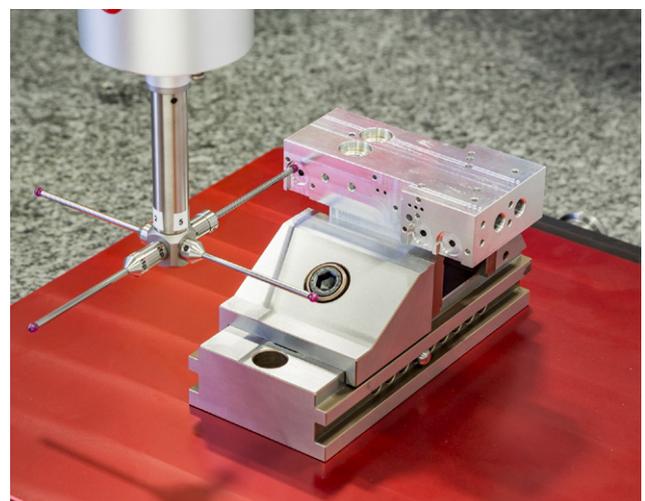
Diebold Goldring tool holders are famous for their high precision in demanding milling applications.

We recommend the use of Pull-Down Vices PNS from our program wherever it is possible. For this purpose, 4 mm additional material is left on the clamping side of the raw material. A V-groove is milled into the extra material. In this V-groove the counter-profiled jaws of the pull-down tensioner will hold the part. This avoids that stress by high clamping forces will be applied on the finish contour of the workpiece. The pull down method gives incredibly high holding power. We can demonstrate the enormous holding forces live on the milling machines used at the Diebold factory at any time. Customers seeing this for the first time are surprised how effective this workpiece clamping works.

In addition, the workpiece is held outside the jaws, which gives more accessibility for the milling cutters. If the workpiece must be clamped in a second operation the part can always be clamped in the same place with the same clamping method. Therefore the entry into the machining program for further processing is easier.



Blank with V-groove



Finished part in the PNS on the measuring machine

The clamping strategy for the workpieces is just as important as the tool holders in order to achieve high machining accuracy. Good vices are available in the market, but there is room for even better vices at the same cost. Just to make the right choice is often difficult if the seller cannot offer brand independent products but has to place his system. That's exactly what happened to Diebold when we stepped into the machining of cubic workpieces in 2016. We learnt a lot how to clamp parts better and really efficient. With that lesson learnt we then decided to offer products for work piece clamping to our customers and to pass on our experience. We offer products that ideally meet our customers` cost-reduction requirements.

For multi-axis machining, we offer PNS vices which, thanks to clever design, offer more room and access for the cutting tools. We offer products form the following brands:

- Diebold: Precision pull-down Vices system PNS
- hemo: Center vices
- hemo: 5-axis work piece clamping
- Parotec: Zero Point Clamping Systems for the automation of the machine
- Erowa: Zero Point Clamping Systems and pallets for milling and eroding
- AMF: Pallets plus Vices
- Schunk: Pallets plus Vices
- Hirschmann: Pallets plus Vices

Diebold has entered into partnerships with the above-mentioned manufacturers of high-quality clamping systems. We can supply the desired vices and the pallets suitable for your Zero Point Clamping System. We can deliver both, assembled and aligned and ready for use if required. Our goal is to assist our customers to improve



their milling processes. We supply the tool holders that are right for your machining and also the best clamping devices.

PNS Precision Pull-Down Vices for multi-side machining

The PNS Precision Pull Down Vices are made with high precision and all surfaces and contours are ground. Therefore, they are the ideal clamping device for accurate, perfect and secure clamping of work pieces for 5/4/3 side machining. When used properly, the high accuracy of the PNS vices with of max 0.01 mm will remain for many years.

The pull-down tensioning mechanism and the tapered jaws allow milling operations in several axes without collisions with the clamping device. The built-in special jaws and the highest manufacturing accuracy of all components of these vices allow the production of high-precision components made of a wide variety of materials.

One particular advantage is the clamping in a V-groove and thus form-fitting precision without loading stress on the raw material. Only about 4mm additional material on the blank is necessary. With this very little extra material the parts will be perfectly clamped. Good work piece clamping ensures minimal tool wear during machining from the blank to finished part. The PNS can easily be disassembled and cleaned.

- All surfaces and contours of the vices are ground
- PNS can be used as a modular system
- Multiple parts clamping is possible with several vices side by side
- Vices can also be clamped in one another for combinations
- PNS are made for automated manufacturing processes
- For EDM work
- For CMM`s to hold parts
- All components hardened to 60 HRc
- Quick width adjustment
- The pull down system prevents lifting of the work piece
- No knock-down necessary
- PNS Vices can be disassembled in a few simple steps and easily be cleaned



Parotec Zero-Point Clamping System

The Parotec Zero-Point clamping system is used by Diebold on their CNC machines for automatic parts loading. From our experience the Parotec clamping principle is the best clamping system for automated loading of pallets because the clamping mechanism is always well protected against chips and dirt. This is an important point for safe and accurate automatic change of pallets. Another important advantage is that the Parotec Power-Grip clamping system always clamps towards the system Zero-Point during thermal changes. When rotating the machine table, the Zero-Point of the pallet is always centered. Precise repeatability is guaranteed. This is not guaranteed with many other Zero-Point clamping systems.



Additional advantages:

- Repeat accuracy of 2 micron has been measured over 750,000 clamping cycles
- The clamping force is particularly high
- Self-locking system maintenance-free, easy cleaning, no external service is necessary
- Single-part production profitably with the Parotec System
- Cost reduction for serial production
- Productivity increase for single piece orders or small batches.

We will plan the selection of your clamping systems together with you and train your employees on cost reductions.

Diebold Precision Center Vices for multi-side machining

Why does Diebold have the hemo clamping technology in their product range?

hemo is a typical Swiss product that is made to the finest quality and optics. Quality and precision are always at the forefront of Diebold products. That's why hemo fits well with Diebold products and their manufacturing philosophy.

hemo offers a sophisticated and consistent system for all requirements and applications. The modular principle makes it possible to combine components of different vice series and allows multiple use. This is a particularly economical aspect of the variable workpiece clamping.

hemo center vices stand out for their high-precision repeatability and solid construction. The combination of precision, modularity, accessibility and the easy handling of the hemo clamping devices guarantee a perfect machining of your work pieces.

hemo starter kits are the best tools for getting started with precision clamping technology.



Centring vice hemo hi-tec



Centring vice hemo basic



Centring vice hemo optima II

Diebold's application engineers assist their customers in choosing the most suitable clamping systems. Together we search for the best savings potential in machining parts. In central Europe we use the Diebold Service-Mobiles to come to your door. We bring everything to show the function of the clamping systems live and to explain the advantages of our clamping systems.



Diebold Demo-Van



Catalog download:
www.hsk.com/en-us/downloads/



Video: Workpiece Clamping Technology

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