

5-axis module clamping system 80



Function



UNILOCK was developed specifically for 5-side machining. Ideal for clamping complex workpiece's. They can then be machined completely in a single clamping operation. Even machining from the 6th side is possible. The workpiece's are connected to the 5-axis module system by a screw connection.

System size 80 mm

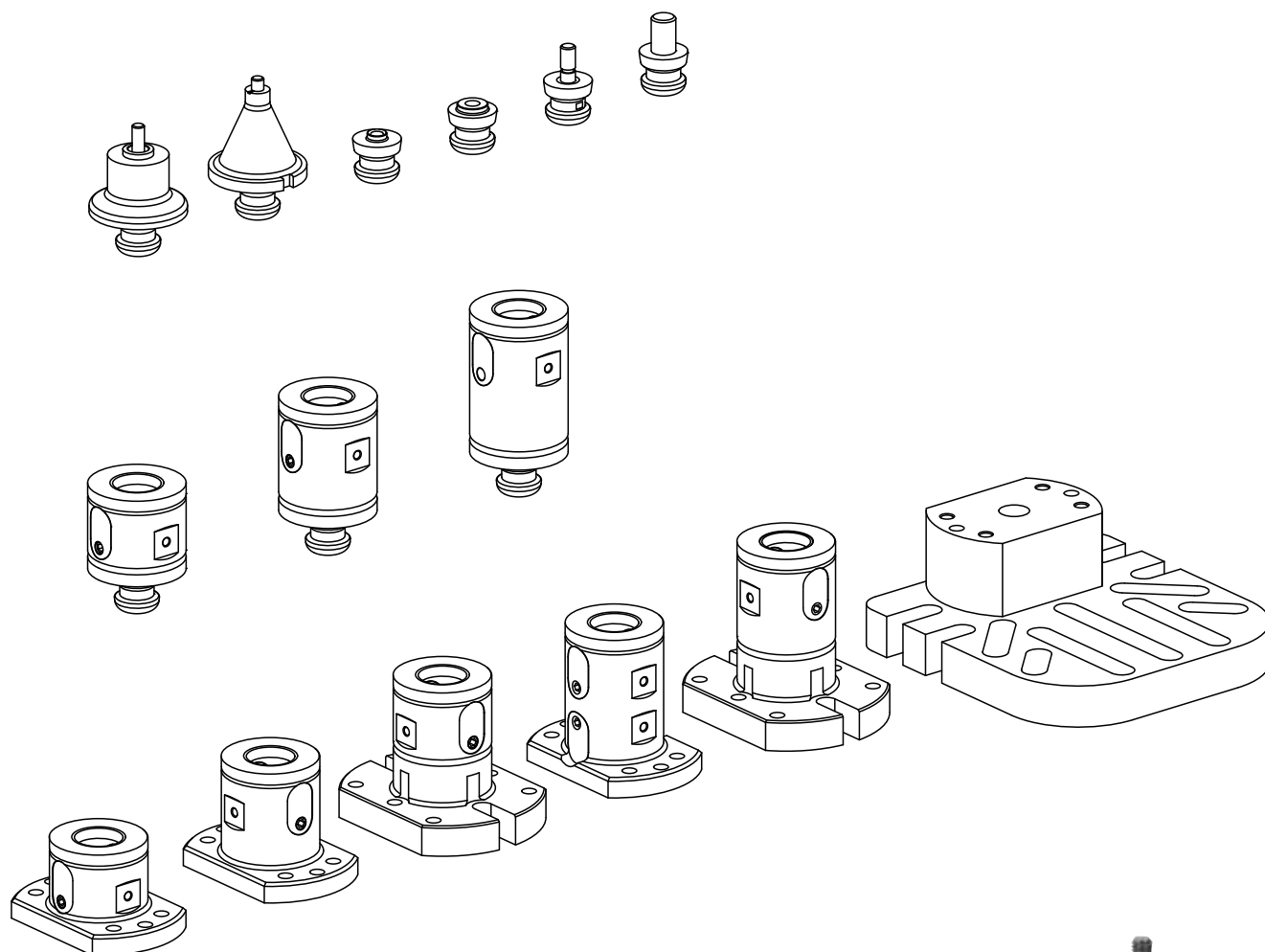


ADVANTAGES:

- 5-side machining with no protruding edges
- Modular construction guarantees maximum flexibility
- Interfaces with commonly used systems
- Variable workpiece fastening
- The workpiece is positively joined to the clamping system
- The workpiece is simply positioned with screws or seating's
- The zero point is transferred to the workpiece
- High module clamping force
- Very high repeat accuracy

Thanks to the modular construction and the variety of modules, the system can be configured individually and recombined for many applications.

More than 70 elements are available: basic modules, add-on modules and accessories.
In combination, they guarantee a variety of heights, docking to interfaces and machining
of complex workpiece's.



Flexible stack heights through a wide variety of basic and add-on clamp modules

Setup times



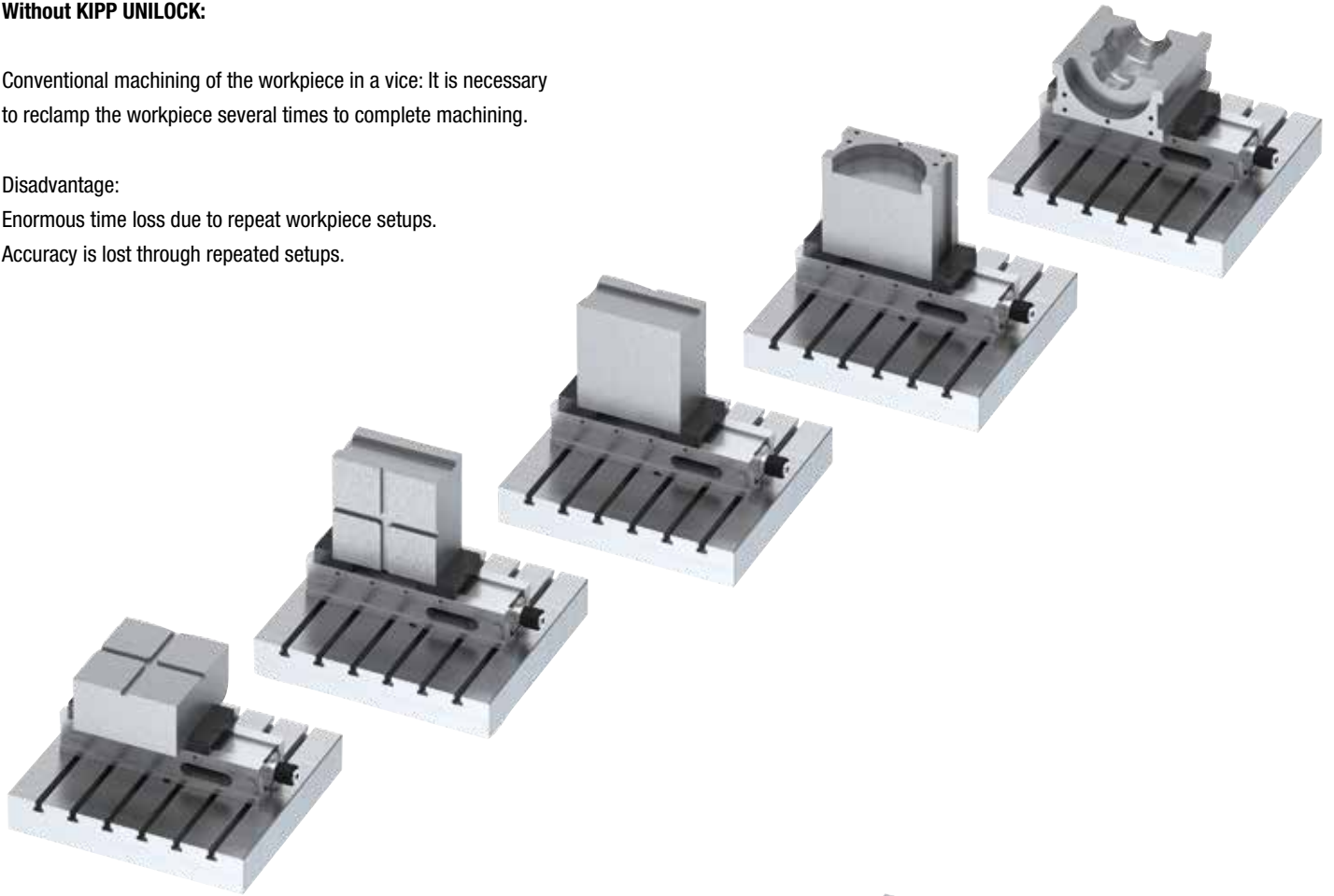
Without KIPP UNILOCK:

Conventional machining of the workpiece in a vice: It is necessary to reclamp the workpiece several times to complete machining.

Disadvantage:

Enormous time loss due to repeat workpiece setups.

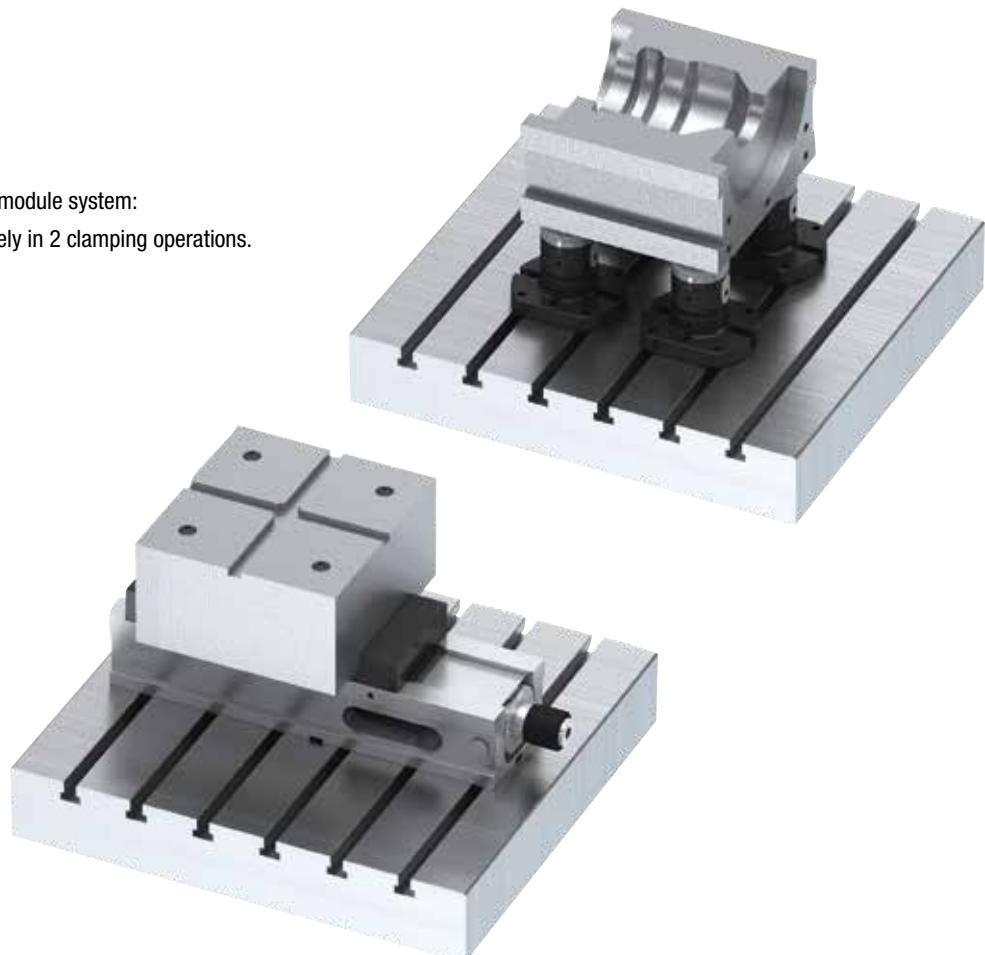
Accuracy is lost through repeated setups.



With KIPP UNILOCK:

Machining with the UNILOCK 5-axis module system:

The workpiece is machined completely in 2 clamping operations.



Interfaces



The 5-axis module system can be mounted on T slot tables, grid systems or directly to machine tables. Moreover, the basic modules can be adapted to most common zero-point clamping systems.

T-slot tables



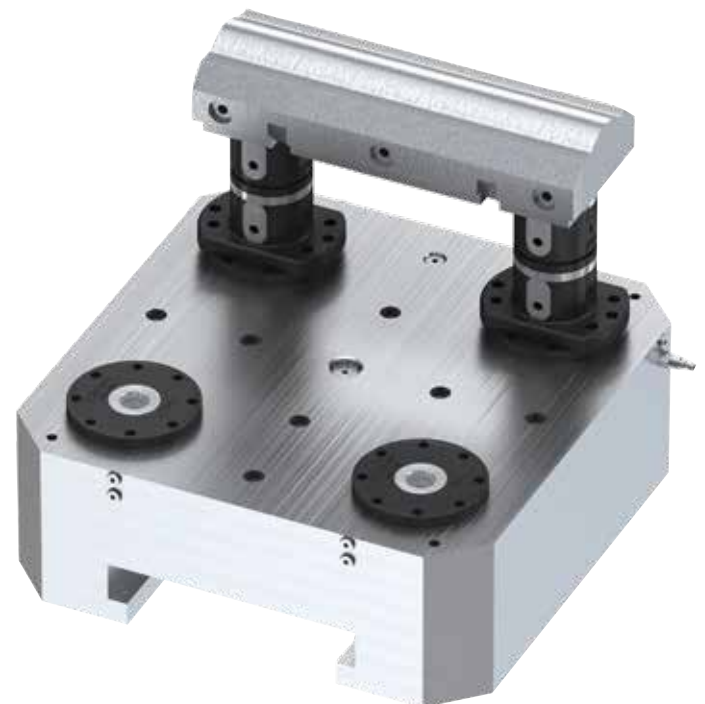
Grid systems



Machine tables



Zero-point clamping systems



Technical information for 5-axis module clamping system 80



Features	Description
Functionality	Functional slides are closed by the manual rotary movement of a threaded spindle with RH/LH threads and lock the clamping pin with frictional force.
Self-locking	After closing, the clamping pin remains in the tensioned clamping module, even if the external tensile force exceeds the retraction force.
Actuation torque	15 Nm
Repeat accuracy: with clamping pin Form A	< 0,005 mm
Short cone centring	Precise centring with radii to ease insertion
Milling application	The clamping modules are generally not approved for turning applications.
Temperature range	+5°C to +60°C

Retraction force in axial direction

Retraction force by 15 Nm actuation torque = 15,000 N



Axial load and retraction path

Axial load $F_{Axial} = 30,000 \text{ N (3 t)}$

Retraction travel = 0.5 mm

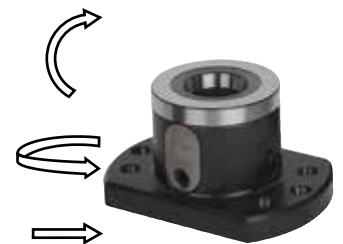


Tilt/torque single module

$M_{\text{tilt module}} = 400 \text{ Nm (empirically determined)}$

$M_{\text{rotation module}} = 60 \text{ Nm}$

$F_{\text{lateral force}} = 1,500 \text{ N [lateral force without relative movement]*}$



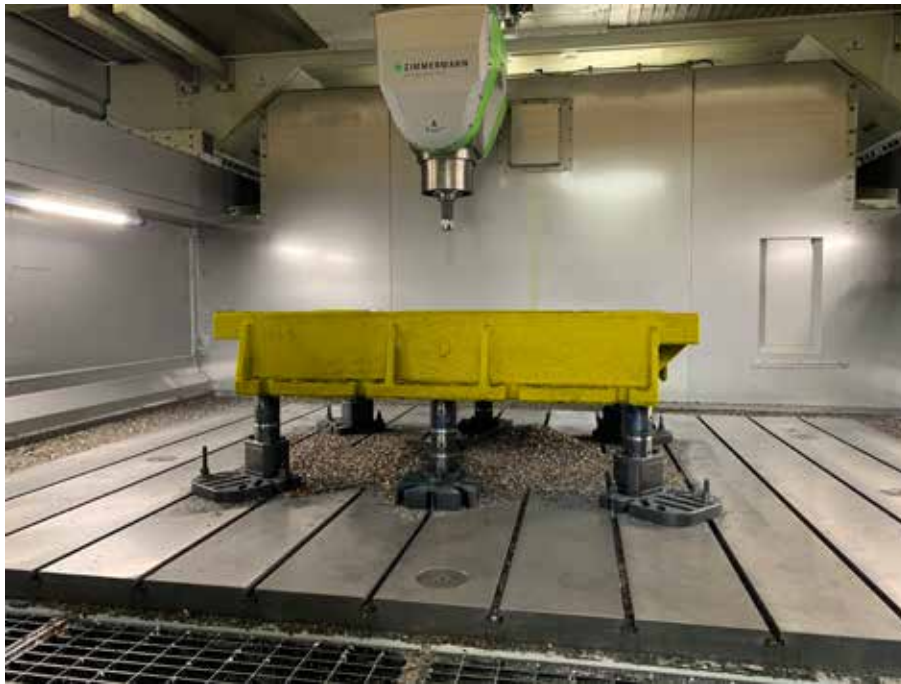
* The correct function of the clamping modules, in particular the repeat accuracy, is guaranteed up to a lateral force of 1,500 N. The failsafe and personal safety of the clamping modules is assured up to a critical lateral force of 14,000 N.

Applications



The workpiece is secured on one, two or more stable module columns. Additional columns can be added easily for large parts. The clamping system is actuated manually without the need for power sources and can be converted very quickly for other workpiece's or fixtures.

Assembling the modules is remarkably simple: position basic module (bolt on from above or below), place add-on clamp modules, position reducer adaptors with bolted-on workpiece and then use a torque wrench to tighten manually. The system is now stable and ready for 5-axis machining.



Applications



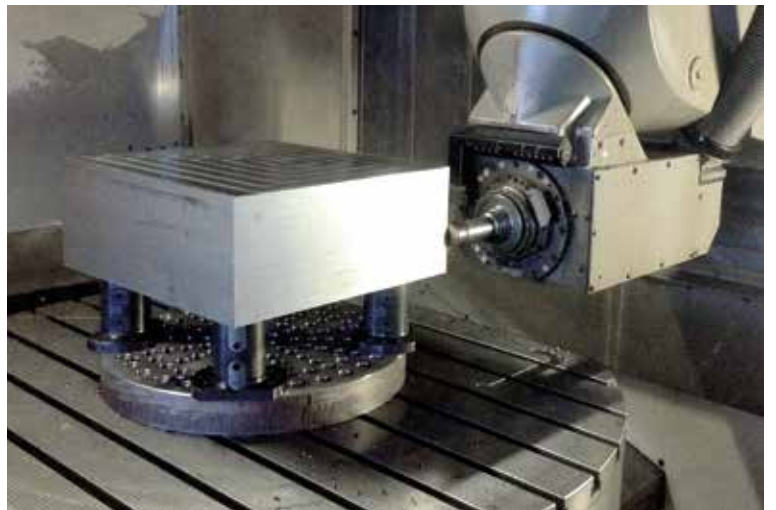
4 basic modules H=100 positioned directly on the machine table. The 4 reducers H=50 on top facilitate optimum access to workpieces.

Clamping height 150 mm



4 double clamp basic modules positioned on a tooling plate. Optimum 5-side machining is possible.

Clamping height 125 mm



Applications



Solid workpiece mounted on 4 basic modules and 4 add-on modules.

Clamping height 150 mm



2 basic modules with a centring clamp adapted directly to a zero-point clamping system.

Clamping height 125 mm



Loading procedure for mounting a long and heavy workpiece on 3 basic modules. Clamp spigots are mounted directly on the workpiece. The workpiece is positioned during clamping.

Clamping height 100 mm

