



BASED ON CLAMPING METHOD

OK-VISE®

FIXTURING CONCEPT



All Platforms, All Workpieces

Small in Size – Giant in Performance

WORKHOLDING TODAY

When productivity needs to improve, we recommend focusing not only on machine tool or cutting tool properties like feed rates and spindle speeds.

When you invest in modern fixturing concepts, in many cases radical improvements in production efficiency, flexibility and product quality are much easier and more economical to realize than putting money into the machine tool itself. Forget old-school machine vises and strap clamps.

COMPANY PROFILE

In the late 1970s Finnish entrepreneur and inventor Olli Kytölä ("OK") bought his first numerically controlled machining centers, but he was not happy with the workholding solutions that were available then.

While fastening the washing line to the brick wall of his house, he started to study the screw anchor that he was using - the rest is part of workholding history.



Today, the OK-VISE clamping method is known worldwide, and has been complemented with further components which form the OK-VISE Fixturing concept.

In addition to the most reliable clamping method on the market, OK-VISE now also offers easier and faster setup change.



Hold-down principle

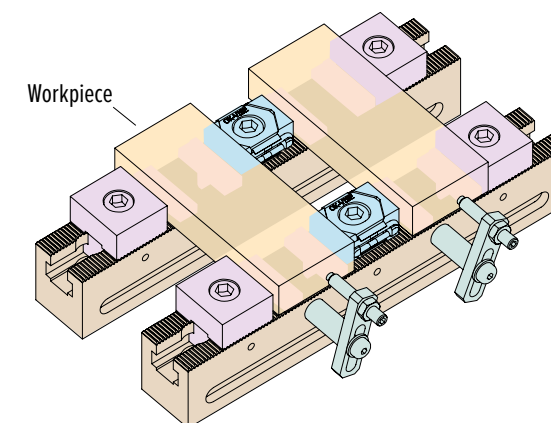
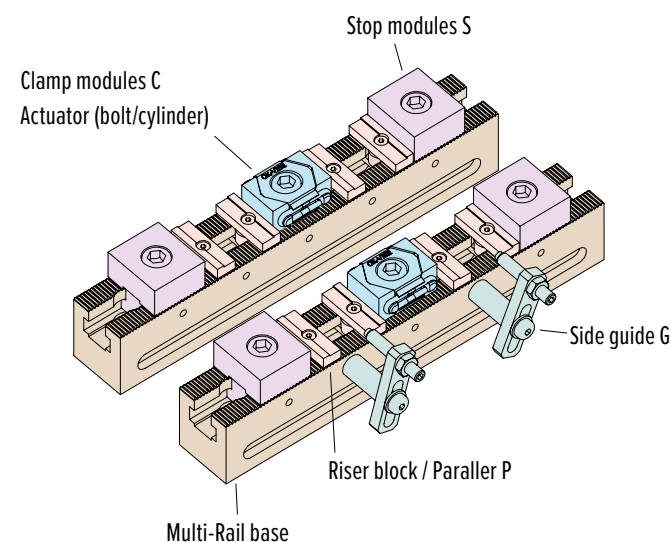
OK-VISE LOW-PROFILE CLAMPS

Olli Kytölä's original invention is still the core of our product range. This unique workholding solution is designed to meet the demands of the modern metalworking, plastics, aerospace and electronics industries.



OK-VISE FIXTURING CONCEPT

The OK-VISE Fixturing Concept features a range of components that are suitable for clamping different workpiece types, sizes and materials on all types of workholding platforms and machining centers.



A wide selection of information as well as the latest updates about our products are easily obtained from our website at www.ok-vise.com

All systems in the OK-VISE FIXTURING CONCEPT include the following modules:

- Clamp modules based on OK-VISE low-profile clamp.
- Stop modules. Clamp presses the workpiece against stop modules, creating either friction or form closure to hold the workpiece while machining.
- Side guides. These enable easy loading of workpieces.
- Riser blocks/parallels. These are used to lift up the workpiece from fixture base.

All modules of the OK-VISE Fixturing Concept are reusable. Therefore, life cycle cost of OK-VISE modules is low so using OK-VISE is a step towards sustainable production.

Our Blank System is a system for building DEDICATED FIXTURING (workpiece-specific fixturing). Normally only one setup of one workpiece can be clamped with these fixtures.

A second option for fixturing is to use a GENERIC-PURPOSE workholding system. A generic purpose system easily adapts to various workpiece sizes, and the components of these systems can be reused and simply reconfigured for a variety of applications and workpieces.

Most fixturing cases can be built using both of these concepts.

FIXTURE PLATES AND PLATFORMS

We also offer platforms like tooling columns, trunnion units (RPS), zero-point positioning system (OK-LOCK) and fixture plates.

WEDGEMAN SELECTION TOOL

To find the most suitable fixturing system for your needs, OK-VISE has designed a selection tool, Wedgeman.



LOW-PROFILE CLAMPS

The OK-VISE clamping method is both an effective and time-saving solution because it allows full utilization of the fixturing platform. It also allows free tool access to the workpiece, is free of play and possesses extreme clamping force in a small space.

Efficient use of the machinable area leads to savings in tool changes, creates less operator interventions and results ultimately in extended cycle times while cutting down machine stop times.

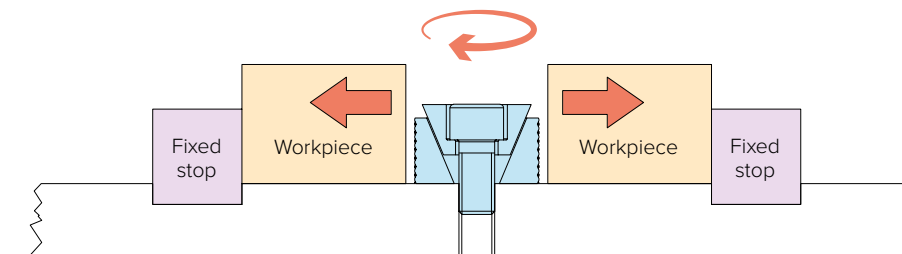
Low-profile clamps do not require a lot of space when compared to traditional machine vises and the variety of jaw types on offer makes the clamp suitable for a wide range of machining applications.

OK-VISE CLAMPING METHOD

OK-VISE low-profile clamps function on the principle that when tightened down they expand, simultaneously pressing the workpieces against the guide and preventing any possibility of play. These clamps are designed to fit between the workpieces and take very little space on the fastening base. Small in size, yet possessing an excellent clamping force up to 150 kN, these clamps guarantee a holding capacity which clearly exceeds the load imposed by machining forces.

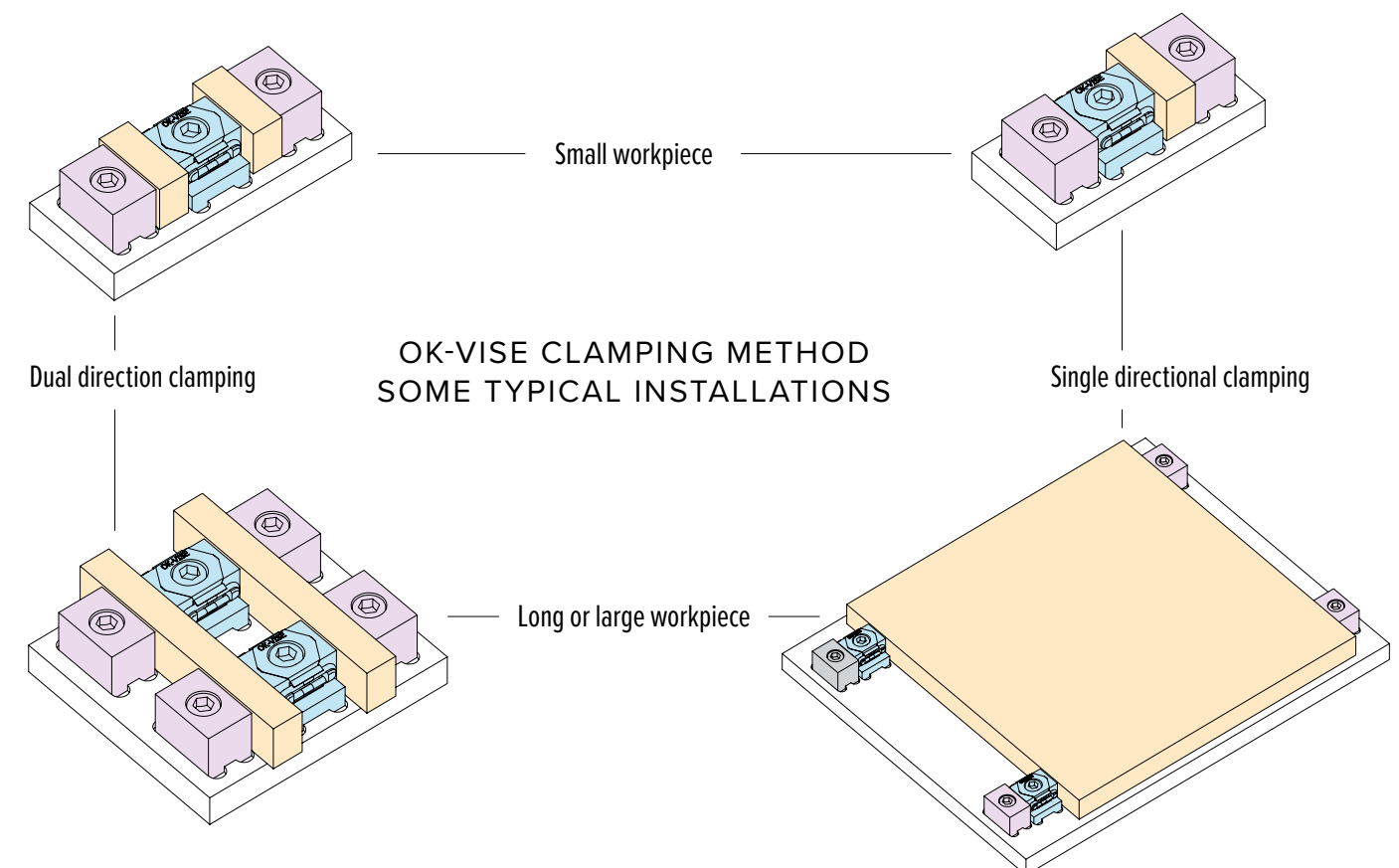
OK-VISE CLAMP ACTUATION

Low-profile clamps can be actuated either manually (picture) or automatically. On both sides of the clamp a stop module (or similar functionality) is needed. With this setup, one or two workpieces can be clamped using one clamp, simply the place of the stopper module accordingly.



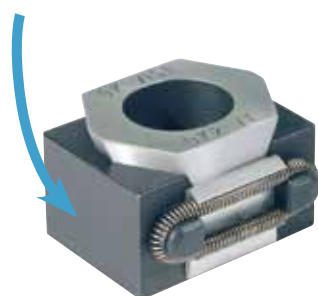
In most common clamp models the wedge prevents the jaw from lifting up while clamping and machining ("hold-down"). Please note that this standard property of OK-VISE is called pull-down by some suppliers.

In addition to holding the workpiece in place, there are also pull-down clamps that generate pull-down force, pressing workpieces onto the fixture base.



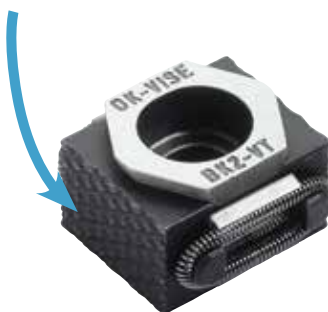
SMOOTH JAWS (-S)

When no marks on the workpieces are allowed, smooth jaws are used. Hardness 52 HRC



SERRATED JAWS (- or -R)

General-purpose clamp for your workshop. Serration creates high friction, which ensures reliable clamping in any circumstances. Hardness 52 HRC



TUNGSTEN CARBIDE COATING (-D)

Offers the same friction as a standard serrated jaw but leaves less visual marks on the workpiece. Industrial diamond coating can also be used for the same purpose.



JAW COMBINATIONS

All these jaw types can be combined with each other into a clamp or stop module. In most cases both jaws of the clamp (or stopper) are same type, like -S, -T, -G. We also offer clamps with two different jaws like -TS or -SG



FORM JAWS

To make a form closure for the workpiece we can also machine various types of special jaws. These jaws have V-slots to clamp disks and rods. They can be "horizontally" (H), "vertically" (V) or both crossed (C). To get a higher accuracy of fixturing, we recommend building the form closure to the stopper in most cases.



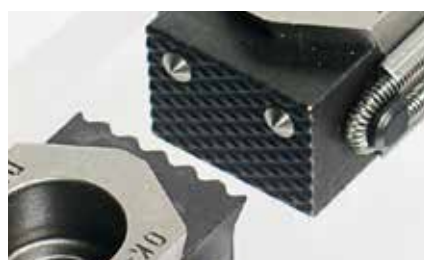
There are new jaw types coming every now and then. Please check www.ok-vise.com for newest updates.

As a rule of thumb, a workpiece is held in a given direction by force closure or form closure.

In low-profile clamp jaws, as well as in stop module jaws some friction is needed to get enough grip against side- and upward forces (force closure). A fixture based on "form closure" can be made by using machinable jaws, machining additional pieces or suitable installation of stoppers.

GRIP MODELS (-G)

When the friction offered by serrated jaws is not enough for your application, grip jaws can be used. Please notice that the jaw penetrates into the work piece, leaving some marks.



MACHINABLE JAWS (+3, +5 or -M)

Single-wedge clamps are also available with extended jaws and can be machined to suit the geometry of the workpiece. The smallest model can be machined up to 3 mm and the larger ones up to 5 mm. Hardness 32 HRC



application

PULL-DOWN MODELS

In most common clamp models, the wedge prevents the jaw from lifting up while clamping and machining ("hold-down"), whereas "pull-down" models create additional force to pull the work piece towards the fixture base.



STAINLESS STEEL MODEL (-SS)

The stainless-steel model is designed to meet the demands of wire EDM applications. This model only contains parts made of high-quality stainless-steel.



ECONOMY MODELS (-O)

These models meet the demands of workholding when ultra-precision and high clamping force are not necessary. They are made of the same raw material as our other models. Only the bottom of the jaw is ground. Our smallest series is only available as the economy model (AK2-VT-SO).



ADDITIONAL PIECE MODELS (-T)

Additional piece models have machined female threading (M5) for socket head screws on the side of the jaw, making it quick and easy to use various additional pieces which can also be machined into irregular shapes.

ADDITIONAL PIECES

There are several sizes of additional pieces available, mostly made from aluminum but also from steel.



(option)

SELF-ADJUSTABLE MODELS (-B or -E)

These clamps have a self-adjustable ball pressure screw inserted into the clamp jaw. The ball at the end is made of steel, allowing the ball to self-adjust up to 9 degrees. This makes clamping irregular-shaped parts and castings more flexible.



INCH MODELS (-VTI, -WTI)

D-series clamps are also designed for the half-inch bolt. The center hole of the inch-series wedge is wider in order to fit the half-inch socket head screw.



CLAMP ACCESSORIES

Several accessories can be utilized with OK-VISE clamps. Take a look at the expanding range of accessories at www.ok-vise.com/low-profile-clamps/accessories



A CORE COMPONENT OF ANY MODERN WORKHOLDING SYSTEM

The OK-VISE low-profile clamp is also the core of OK-VISE FIXTURING CONCEPT.

Low-profile clamps adapt optimally to any workholding platform. They fit into grid pattern systems, T-slot tables, serrated rails and many other platforms. OK-VISE clamps are suitable for three-directional machining, 5-axis machining and many other modern machining methods. When fixtures are needed for any modern machining application, OK-VISE clamps and OK-VISE FIXTURING CONCEPT are your best choice.

FULL 10 YEAR WARRANTY

OK-Vise Oy has been a leading manufacturer of wedgeclamps for over 30 years. Some of our first customers have been using the same clamps for all this time and still use them on a daily basis. Based on this experience, and after conducting extensive tests with our clamps, we are prepared to give a full 10 year warranty for the quality of the raw material and craftsmanship of all wedge and jaw parts of our low-profile clamps, excluding the blackening, springs, and sideplates.

The warranty does not cover damages caused by machine malfunction, human error, or clamp misuse.



ABSOLUTE STABILITY

The key feature of the OK-VISE low-profile clamp is its cross-wedge structure in both the horizontal and vertical planes, which means that the clamp is locked firmly in every direction as it is tightened down. This eliminates all possibilities of play.

EXTREME CLAMPING FORCE

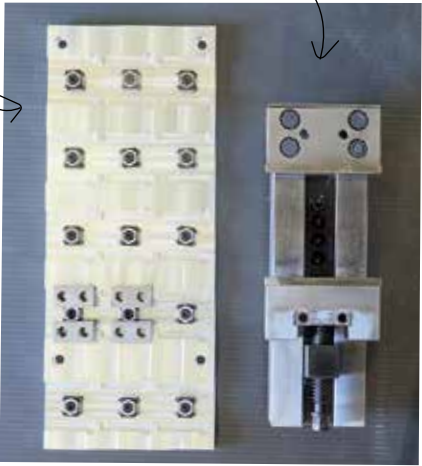
With extreme clamping force of up to 150 kN, OK-VISE low-profile clamps guarantee a holding capacity that clearly exceeds the load imposed by machining forces.

SMALL IN SIZE – GIANT IN PERFORMANCE

Low-profile clamps do not require as much space as traditional machine vises. In the picture a BK2-VT clamp is compared to an old-school machine vise. Both with 2,5 tons of clamping force. This leads to efficient use of the machinable area, savings in tool changes, less operator interventions, and ultimately to extended cycle times while reducing machine downtime.

Thanks to their small size, these light-weight clamps are easy to install. Moving them from one application or machine to another is virtually effortless. Their universal design makes easy use a reality in all types of CNC machining centers as well as FMS Systems.

OK-VISE BK2-VT clamp 25 kN (2,5 tons)
Typical machine vise 25 kN (2,5 tons)



LOW-PROFILE CLAMP VS. TRADITIONAL STRAP CLAMP

The basic idea of OK-VISE low-profile clamps is that the workpiece is clamped from the side instead of the top. This means:

- Better space utilization
- Reduced risk of crashes while machining
- Spindle path can be programmed more straightforward, which means faster machining

ULTIMATE RELIABILITY

As the original inventor of the wedge-operated low-profile clamp, OK-VISE has decades of history of efficient and reliable installations world-wide.

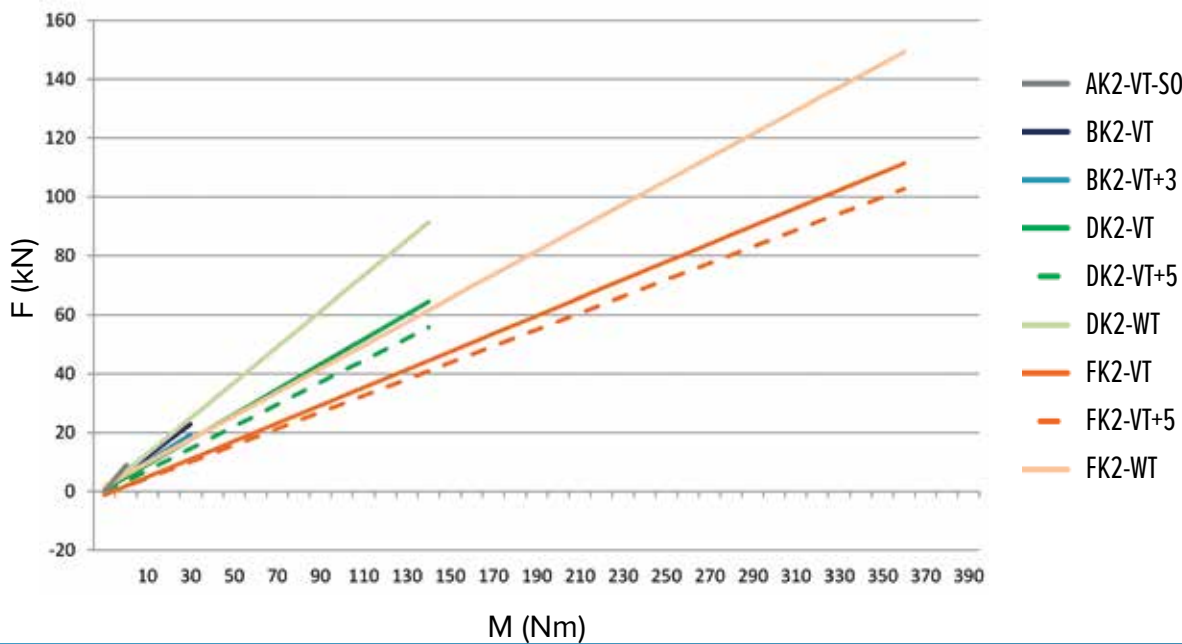
With OK-VISE low-profile clamps, it is possible to achieve the highest level of reliability and safety.

OK-VISE LOW-PROFILE CLAMP TYPES

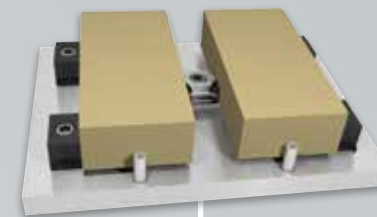
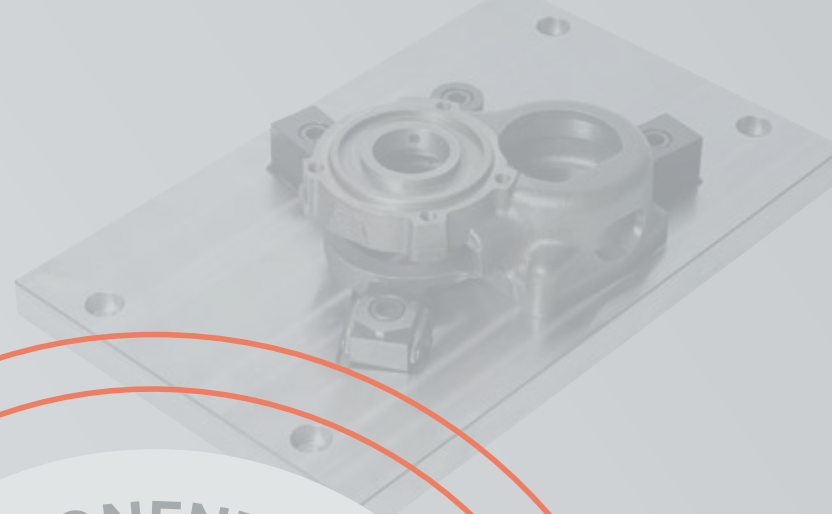
SIZE	A	B	D	D (inch)	F
Serrated basic version		BK2-VT	DK2-VT	DK2-VTI	FK2-VT
Smooth basic version		BK2-VT-S	DK2-VT-S	DK2-VTI-S	FK2-VT-S
Grip jaw & serrated jaw combo		BK2-VT-RG	DK2-VT-RG	DK2-VTI-RG	FK2-VT-RG
Machinable jaws		BK2-VT+3	DK2-VT+5	DK2-VTI+5	FK2-VT+5
Machined Cross V jaws		BK2-VT-C	DK2-VT-C	DK2-VTI-C	FK2-VT-C
Additional piece model		BK2-VT-T	DK2-VT-T	DK2-VTI-T	FK2-VT-T
Self-adjustable model		BK2-VT-B	DK2-VT-B	DK2-VTI-B	
Two self-adjustable jaws		BK2-VT-E	DK2-VT-E	DK2-VTI-E	
Single-wedge pull-down, serrated		BK2-VT-PD	DK2-VT-PD	DK2-VTI-PD	FK2-VT-PD
Double-wedge pull-down, serrated			DK2-WT	DK2-WTI	FK2-WT
Double-wedge pull-down, smooth			DK2-WT-S	DK2-WTI-S	FK2-WT-S
Stainless steel model		BK2-VT-SS			
Economy-series, serrated		BK2-VT-0			
Economy-series, smooth	AK2-VT-S0	BK2-VT-S0			
Metric bolt	M5	M8	M12		M16
Imperial bolt	3/16"	5/16"		1/2"	5/8"
Force up to (kN)	10	25	90	90	150

OK-VISE CLAMPFORCES

Horizontal forces of OK-Vise low profile clamps



Our Blank system is a system for building **DEDICATED FIXTURING** (workpiece-specific fixturing). Normally only one setup of one workpiece can be clamped with these fixtures.



Blank Fixturing system
PAGE 24

GENERIC-PURPOSE COMPONENTS VS. DEDICATED FIXTURING

In most cases machining a workpiece requires more than one fixture. The fixture for a specific workpiece and a specific machining operation can be built by using modules for generic-purpose fixturing or dedicated fixturing.

A dedicated fixture is workpiece-specific, whereas a system built of generic-purpose components can be set up for a variety of workpieces.

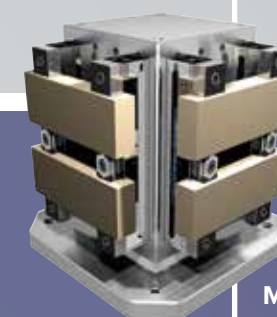
FIXTURE BUILT FROM GENERIC-PURPOSE FIXTURING COMPONENTS

- Modular system
- Off-the shelf availability of modules
- Possible changes can be limited to individual modules
- Setup change can be done moving the stop modules

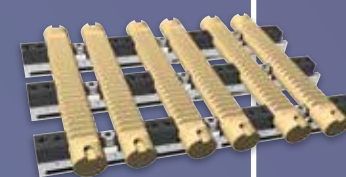
DEDICATED FIXTURE

- Production cost is the lowest of all
- High design cost
- Longer delivery time
- Setup change must be done by changing the fixture

**In addition to these extremes,
many fixturing challenges can be solved
using an innovative mix of dedicated and
generic-purpose components.**



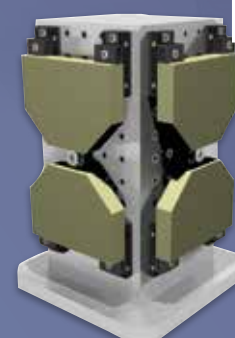
Multi-Rail RM system
PAGE 12



Multi-Rail RH system
PAGE 18



Combo-Rail
PAGE 20



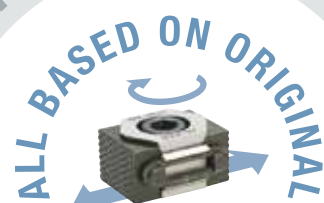
Grid system
PAGE 22

WORKPIECES

With OK-VISE, a variety of workpieces can be clamped. With generic-purpose systems, most typical workpieces are billets, rods & bars and discs.

To clamp most challenging forms of castings and plate cutouts, making a dedicated fixture can often be the simplest choice.

COMPONENTS FOR
DEDICATED FIXTURING



OK-VISE®
Clamping Method

GENERIC PURPOSE SYSTEM
DIGIFORCE VERIFICATION
AUTOMATED CLAMPING

All these systems are based on OK-VISE low-profile clamps.

Additionally, instead of traditional manual clamping all these systems can be automated using hydraulic clamping modules from OK-VISE.

A second option for fixturing is to use OK-VISE's **GENERIC PURPOSE** workholding system. Our generic purpose system adapts easily to various workpiece sizes, and the components of these systems can be reused and reconfigured easily for a variety of applications and workpieces.

Of our generic-purpose components the most typical is the Multi-Rail System. In addition to the commonest RM size – M stands for medium – we also supply a heavy duty rail size RH.

Multi-Rail RM is the ideal system to replace old-fashioned machine vises in generic-purpose clamping, and it also performs optimally on all workholding platforms.

Our patented Combo-Rail unit is optimized for applications that require work support in floating mode, which means that once positioned, the unit clamps the workpiece in place without moving it. This is used when the work piece is positioned by other means and bending of the workpiece at the support point needs to be avoided. The Combo-Rail unit also features centralizing mode and a machine vise mode in addition to the floating mode. One more system that is available is the Grid System. The module interface is optimized for grid platform (M12 positioning bushing and an M12 thread in a 50x50mm matrix). This system is optimal for clamping complex workpiece forms like plates.

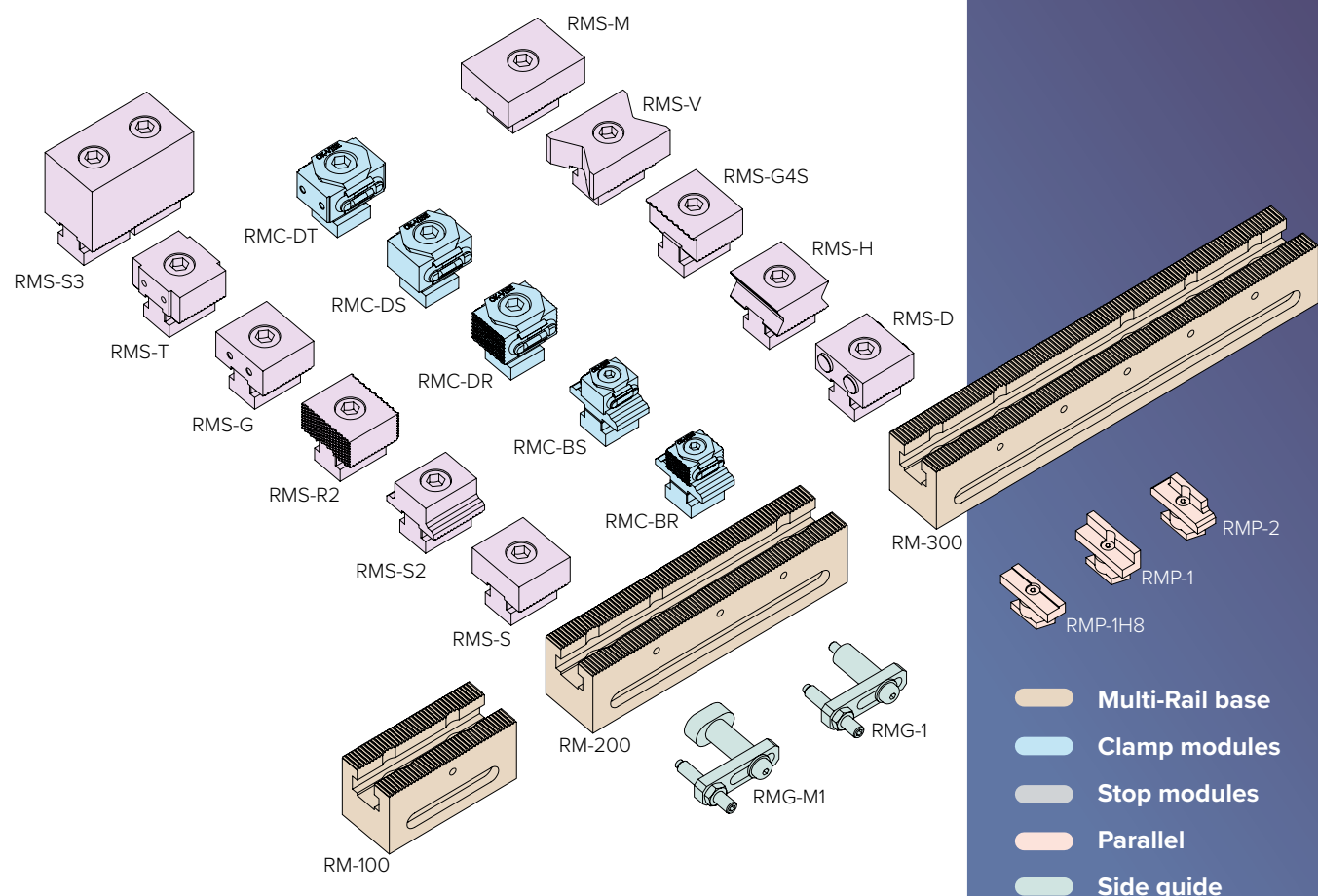


OK-VISE MULTI-RAIL RM

OK-VISE MULTI-RAIL RM System is the best-selling generic purpose system of OK-VISE. Compared to a traditional machine vise, the Multi-Rail system offers the following benefits:

- Using the components of the system, even the most challenging workpiece types can be machined
- All sides of a workpiece can be machined with two setups
- Multiple workpieces can be clamped simultaneously
- Workpiece will be safely fixtured in all conditions
- It is also possible to clamp very large workpieces
- Multi-Rail RM system modules are the most accurate multiple clamping modules on the market, most of them giving 10 micron accuracy

Maximum clamping force that can be applied to the base rail is 6 metric tons (60 kN)



COMPONENTS MULTI-RAIL RM

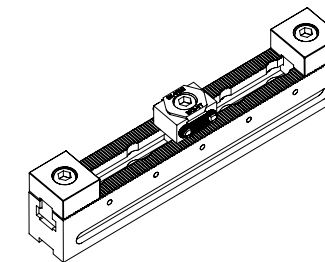
- Multi-Rail base
- Clamp modules
- Stop modules
- Parallel
- Side guide

To make selection of the components easier, the OK-VISE team suggests some basic sets to enable an easy start with the Multi-Rail system. In the pictures below you can see some solutions done with each set. Using a well-chosen set of modules a huge variety of workpieces can be clamped simply using the same modules. When workpiece material, form or size changes, the modules of the fixture can be changed independently of each other.

We also offer installation components for the most typical platforms like T-slot tables and grid platforms.

SRM-132GD1

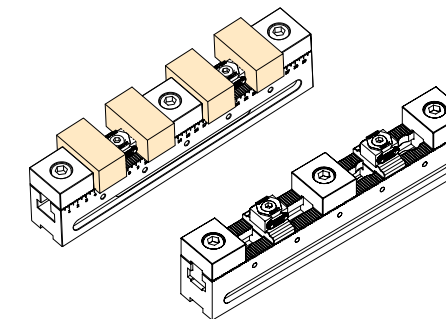
- For three-directional machining
- One or two workpieces can be machined at the same time



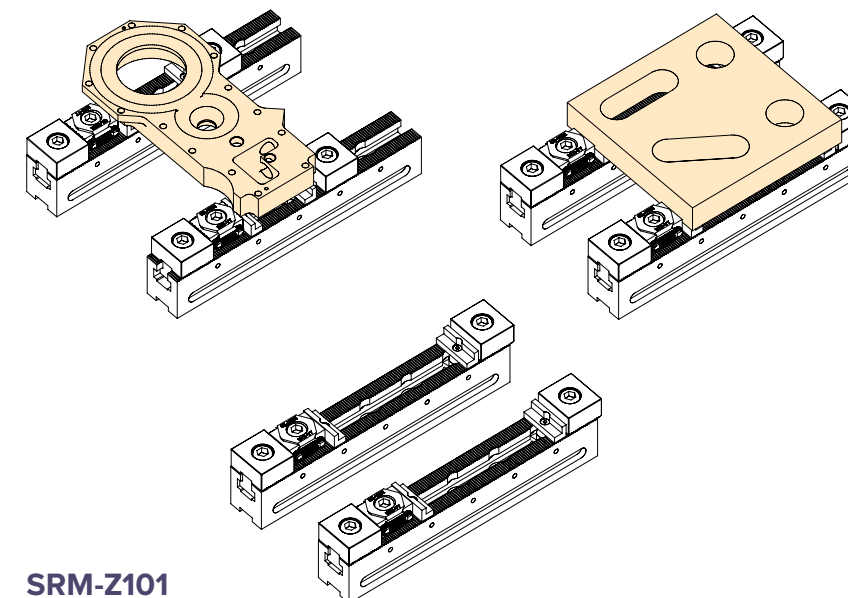
code	name	pcs
RM-300	multi-rail base	1
RM-S	stop module smooth	2
RMC-DS	clamp module D smooth	1

SRM-133GB1

- For three-directional machining
- Four workpieces can be machined at the same time



code	name	pcs
RM-300	multi-rail base	1
RM-S	stop module smooth	3
RMC-BS	clamp module B smooth	2



SRM-Z101

code	name	pcs
RM-300	multi-rail base	2
RM-S	stop module smooth	4
RMC-DS	clamp module D smooth	2
RMP-1	parallel block	4

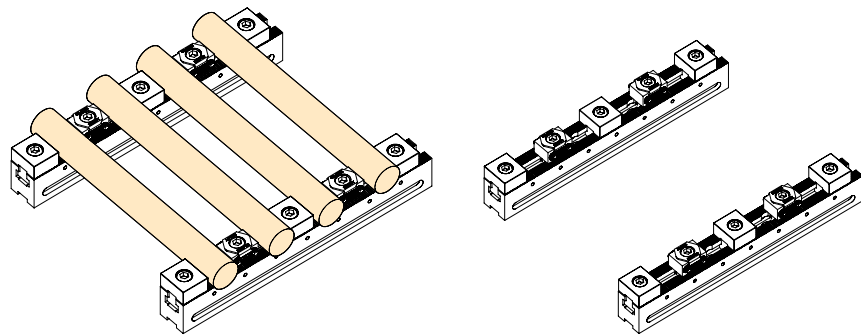


FIXTURE SETS MULTI-RAIL RM



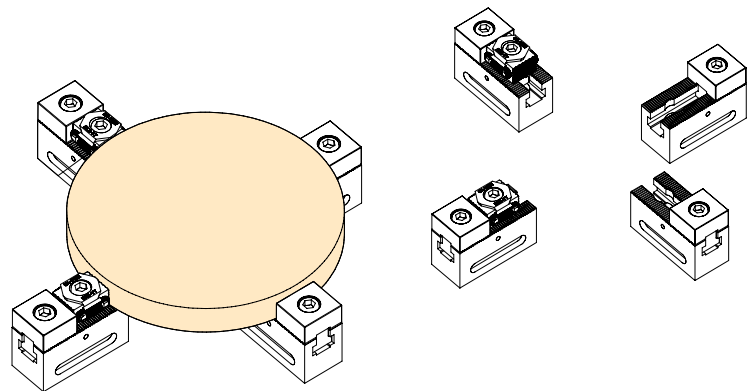
APPLICATIONS
MULTI-RAIL RM

code	name	pcs
RM-300	multi-rail base	2
RM-S	stop module smooth	6
RMC-DS	clamp module D smooth	4



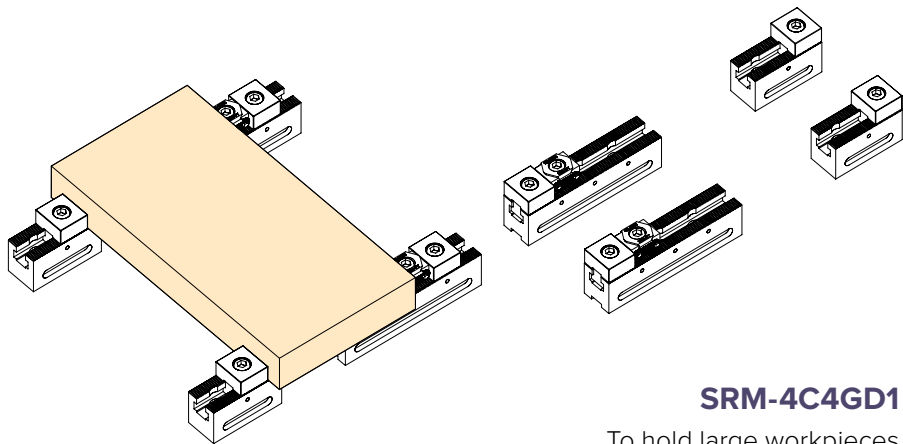
SRM-Z102

code	name	pcs
RM-100	multi-rail base	4
RMS-S	stop module smooth	4
RMC-DS	clamp module smooth	2



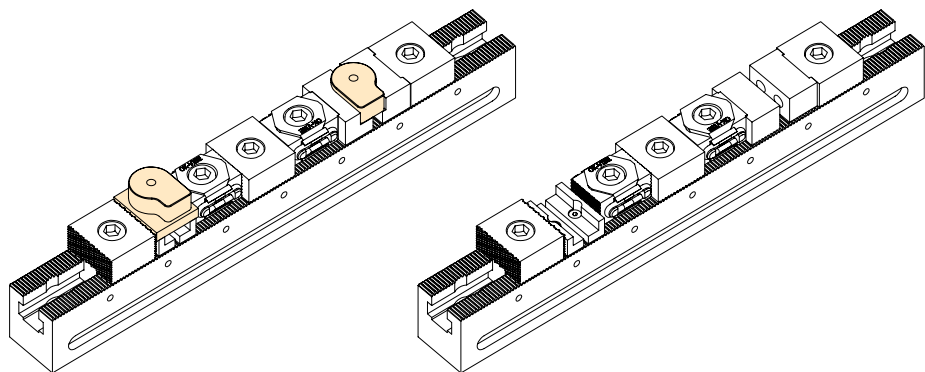
SRM-Z108

code	name	pcs
RM-100	multi-rail base	4
RMS-S	stop module smooth	4
RMC-DS	clamp module D smooth	2



SRM-4C4GD1
To hold large workpieces

code	name	pcs
RM-400	multi-rail base	1
RMS-TS		1
RMC-DTS		1
RMC-DR		1
RMS-S		1
RMP-1	parallel block	2
RMS-R2		1
JDA-15		2

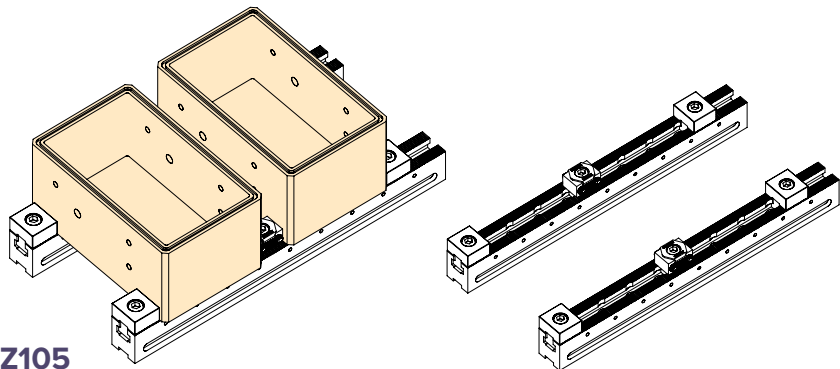


SRM-Z107

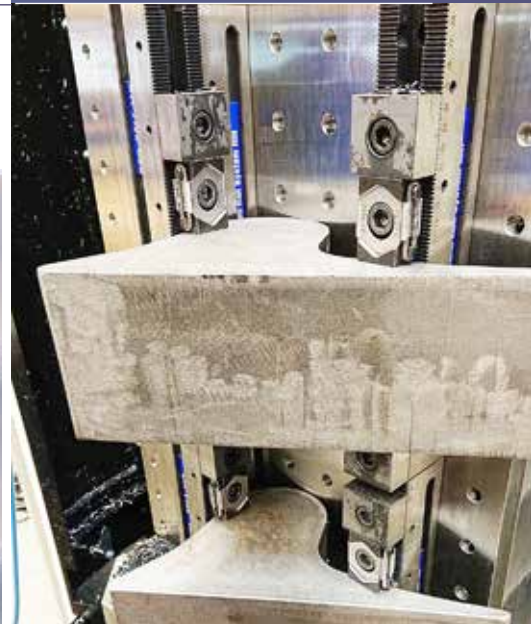
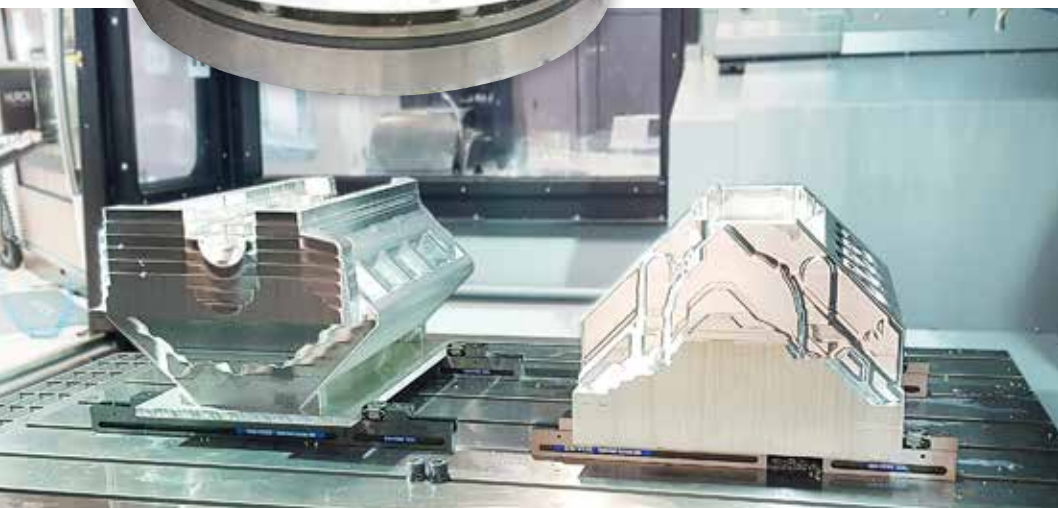
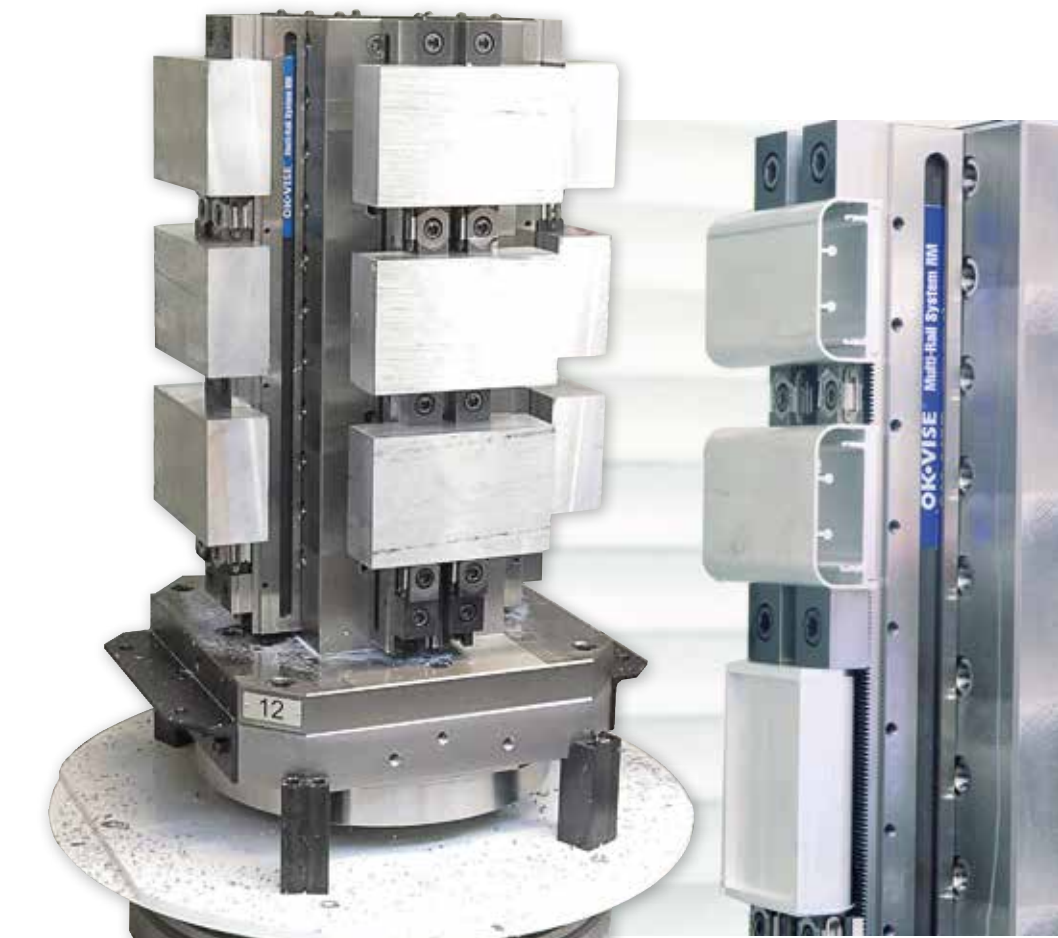


APPLICATIONS
MULTI-RAIL RM

code	name	pcs
RM500	multi-rail base	2
RMS-S	stop module smooth	4
RMC-DS	clamp module smooth	2



SRM-Z105





OPTIONS

We also offer installation sets for the most common platforms like T-slot tables and grid systems. Spigot installations to all leading zero-point systems – including OK-LOCK System – are available.



TIPS TO CHOOSE SUITABLE MODULES

Base-rail

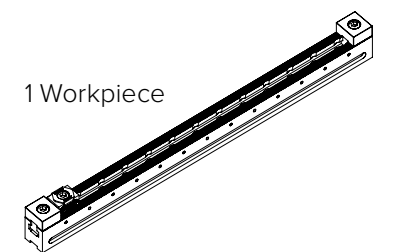
Choose suitable length that allows enough space for workpieces, stoppers and clamps. Please also take your future needs into account

Stoppers and clamps

For first operation, especially when clamping is done on a rough surface like sawn or flame-cut surfaces, serrated jaws are needed.

When no marks are allowed on the workpiece - for example when clamping is done on a machined surface, smooth jaws are used.

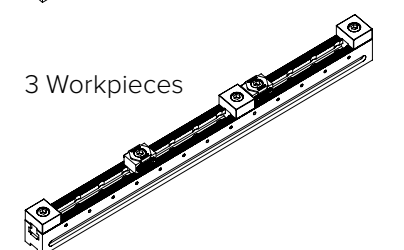
Side guides are used to make positioning of the workpiece easier and faster.



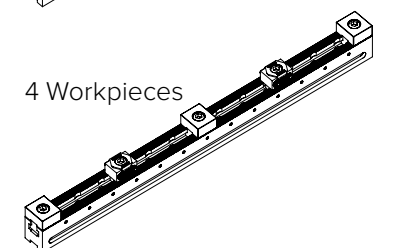
1 Workpiece



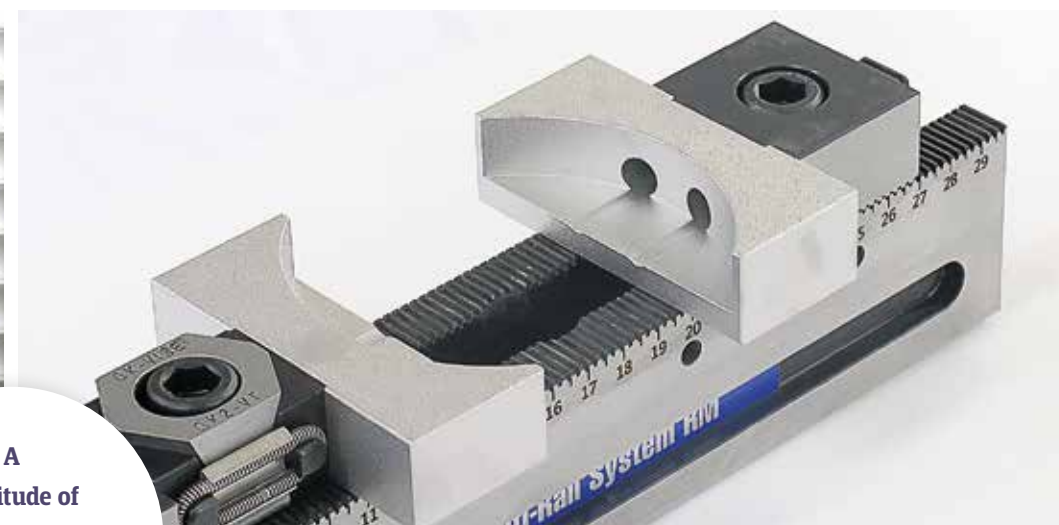
2 Workpieces



3 Workpieces



4 Workpieces



A
multitude of
workpiece forms
can be easily
clamped



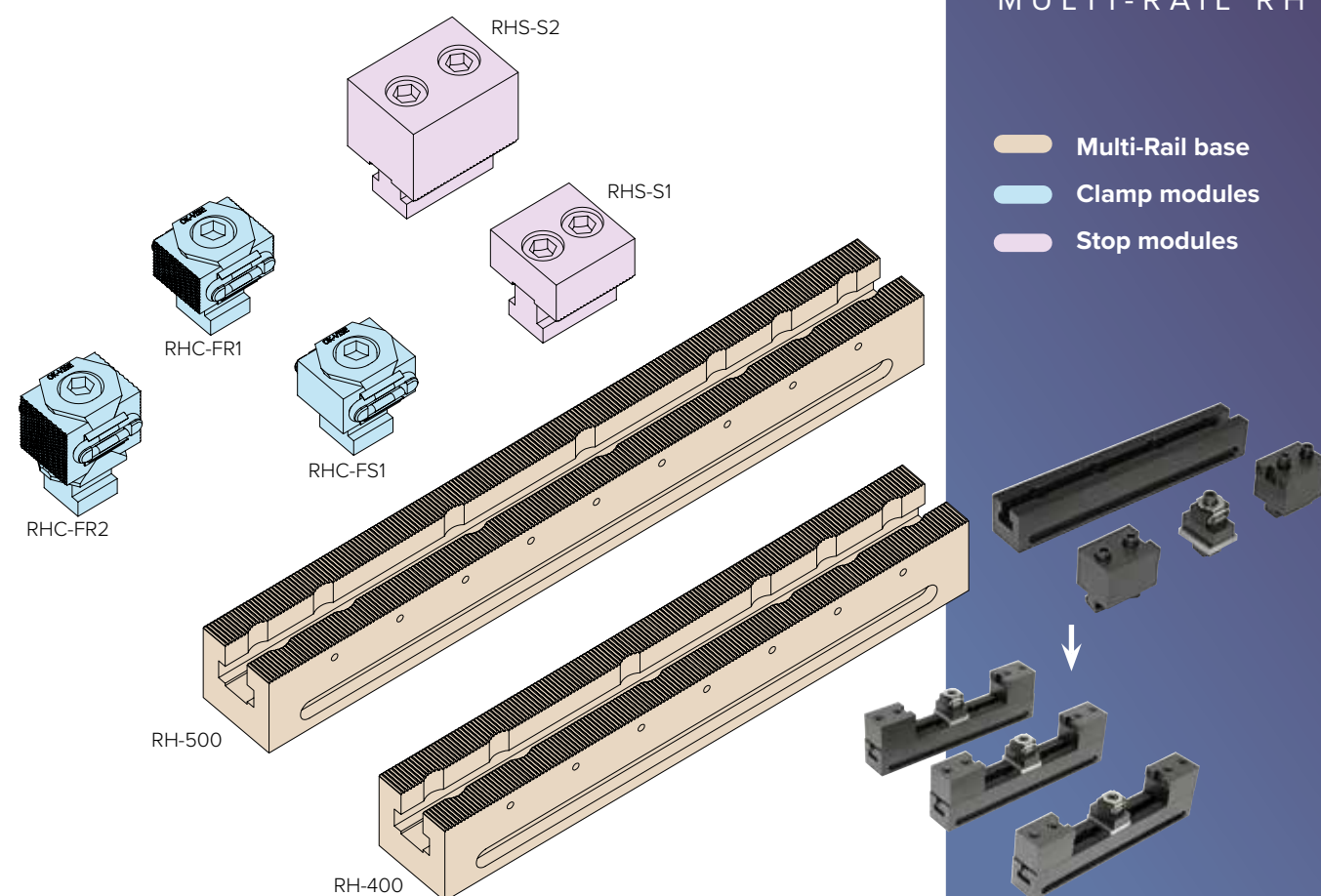
OK-VISE MULTI-RAIL RH SYSTEM

Multi-Rail RH system is designed for heavy duty applications. When more than 6 tons clamping force is required or only M16 bolts can be used for installation, then our RH system can be considered instead of RM.

FIXTURE SETS

The OK-VISE team has created some basic sets to enable an easy start with the Multi-Rail system. Compared to a traditional machine vise, the Multi-Rail RH system offers the following benefits:

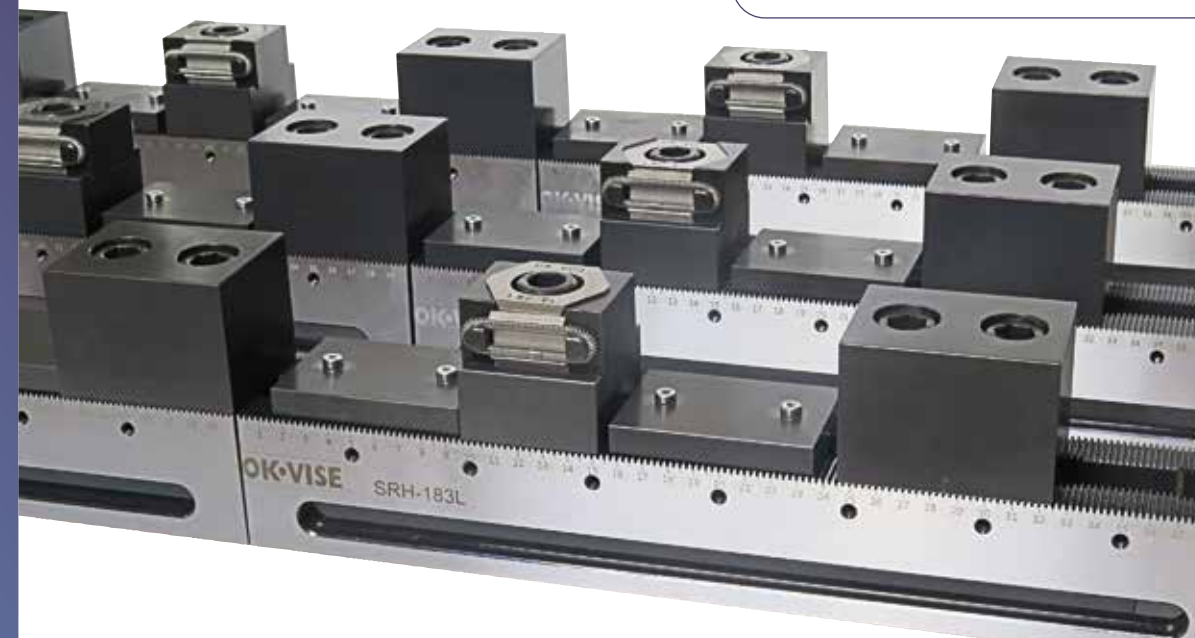
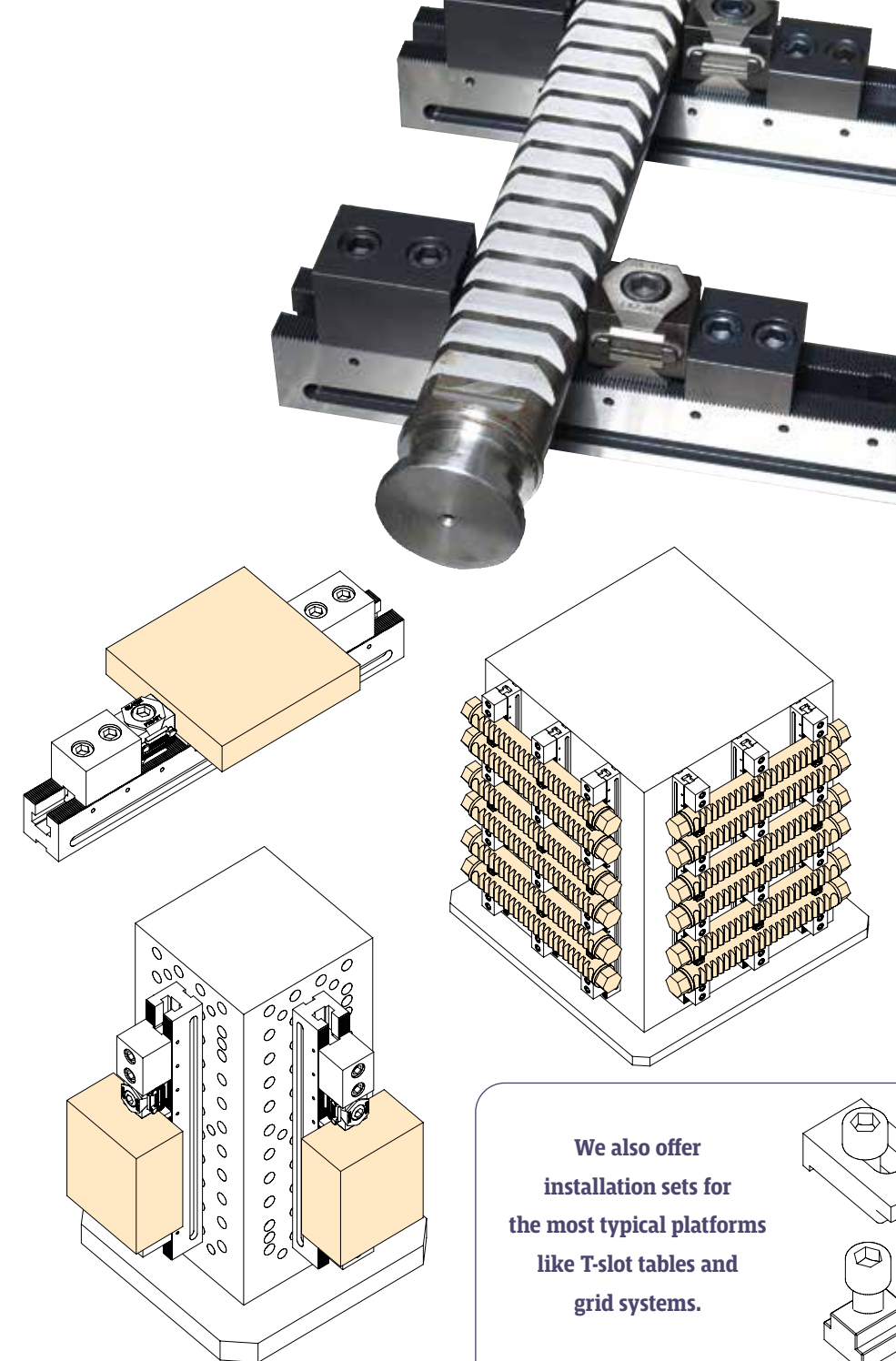
- Using the components of the system, even the most challenging workpiece types can be machined.
- All sides of a workpiece can be machined with two setups.
- Multiple workpieces can be clamped simultaneously.
- The workpiece is safely fixed under all conditions.
- It is also possible to clamp very large workpieces.



COMPONENTS MULTI-RAIL RH

- Multi-Rail base
- Clamp modules
- Stop modules

APPLICATIONS MULTI-RAIL RH





APPLICATIONS COMBO-RAIL

OK-VISE COMBO-RAIL

Our patented Combo-Rail unit is optimized for applications that require work support in floating mode, which means that once positioned, the unit clamps the workpiece in place without moving it. This is used when the workpiece is positioned by other means and bending of the workpiece at the support point needs to be avoided. Combo-Rail unit also features several centralizing mode and machine vise mode in addition to the floating mode.

Floating mode

Floating mode is needed for workpieces which are long or large in size, and clamping inaccurate workpieces like castings, forgings or flame-cut workpieces. This patent-pending solution has earned praise worldwide for its simplicity.

This is the most important operating mode of the Combo-Rail. Here the fixture adjusts to the place of the workpiece.

Floating mode installation normally needs positioning with some other means, like two Multi-Rail units, positioning pins, positioning by a robot etc.

Centralizing mode

The jaws move synchronously. As long as the clamp place is not moved, the centre line of a casting or similar workpiece remains in the same place even if the outer dimensions of the workpiece changes.

Machine vise mode

In this mode the one jaw is fixed to the base. Compared to traditional machine vises, in this method the ergonomics are radically improved in vertical machining centers.

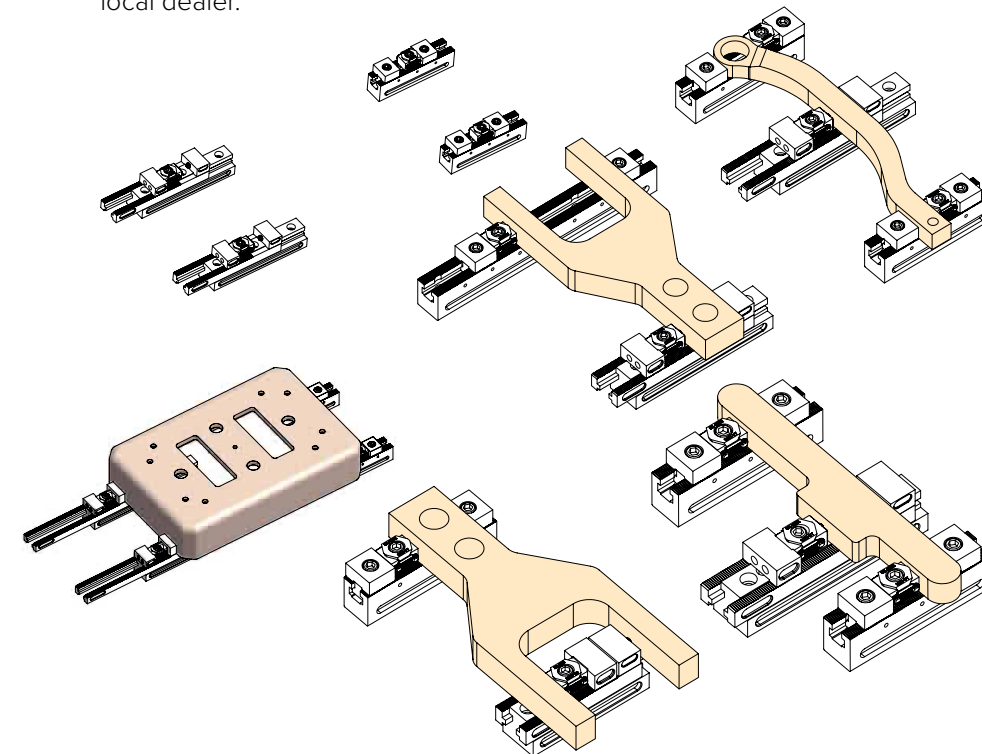
CRH-K250

CRH-K250 is a Combo-Rail unit that can be set in all three modes as mentioned before, by changing the jaw or wedge components (all included). All workpieces from 0 to 120 mm size can be clamped. The base height is 50 mm and total length is 250 mm.

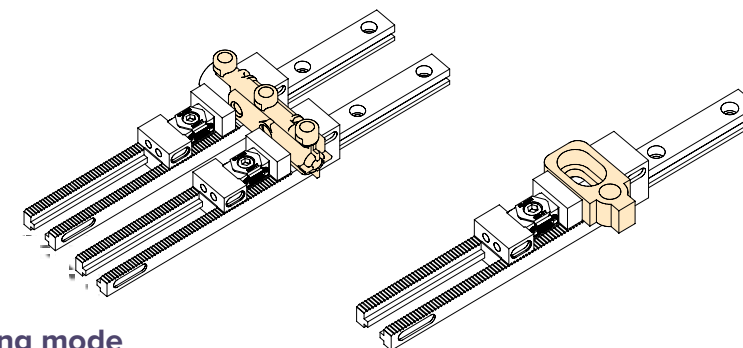
There are several adapter sets available for various platforms.



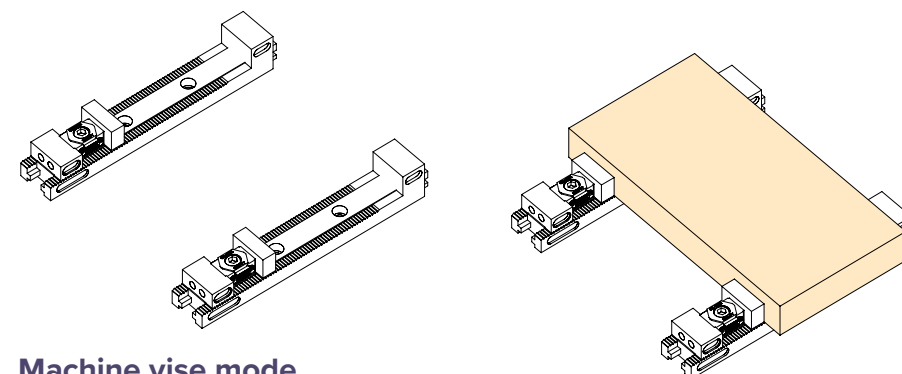
The Combo-Rail units can be combined with most OK-VISE Fixturing Concept components. In particular, combining Combo-Rail units with OK-VISE Multi-Rail has been proven to be a brilliant combination. Special versions are also available, please do not hesitate to ask for price and delivery time from our local dealer.



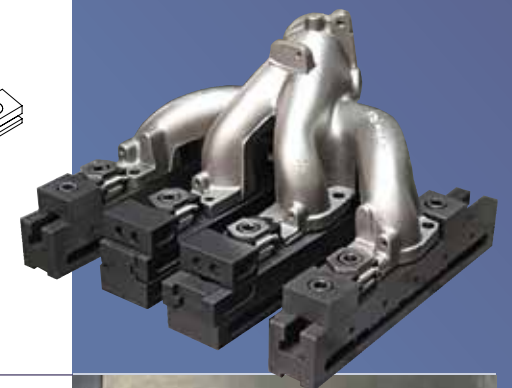
Floating mode



Centralizing mode



Machine vise mode

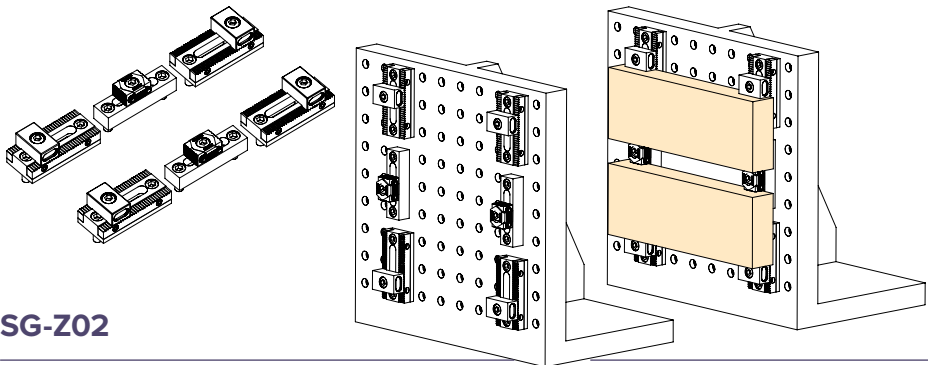
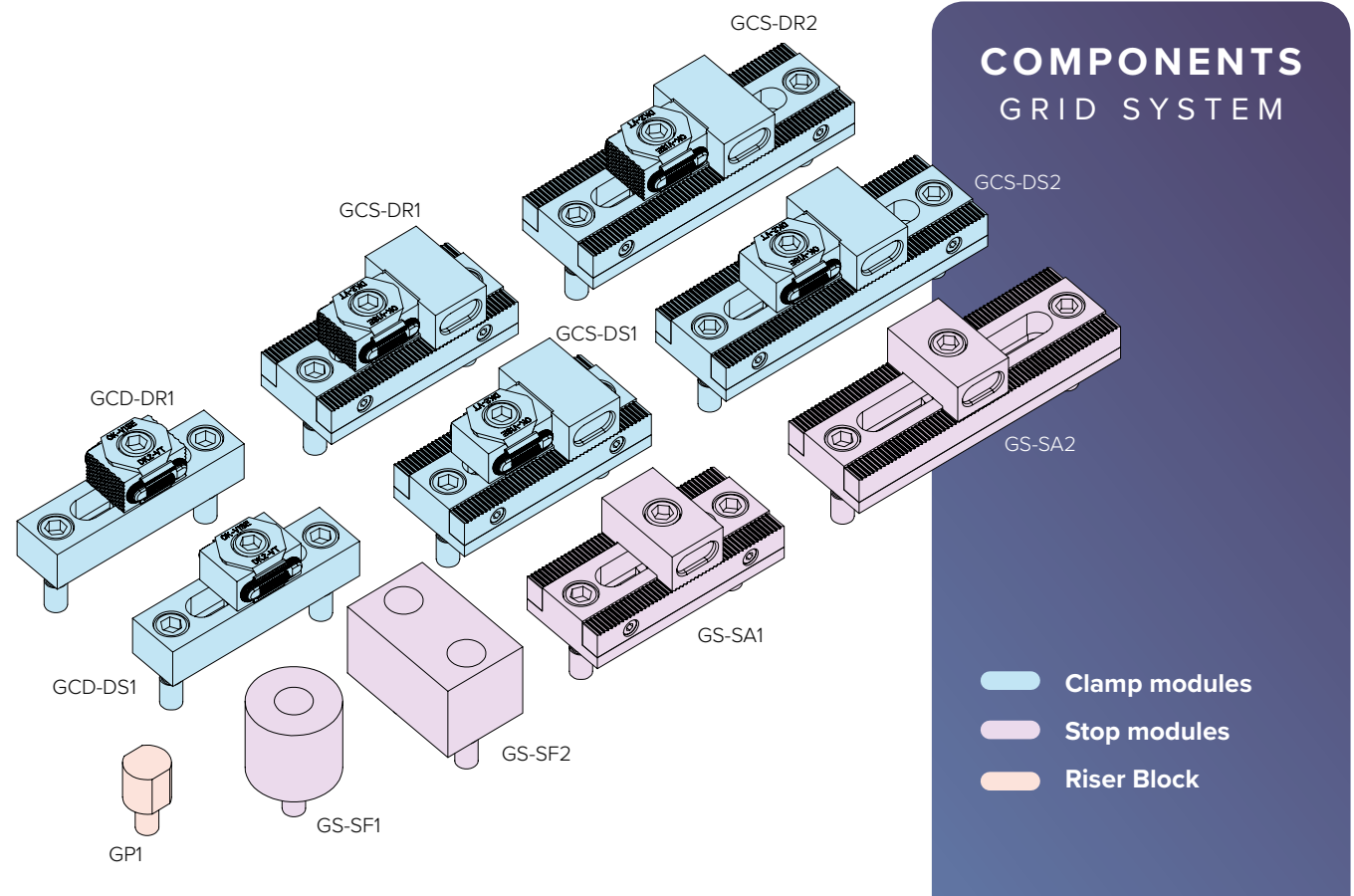




GRID FIXTURING SYSTEM

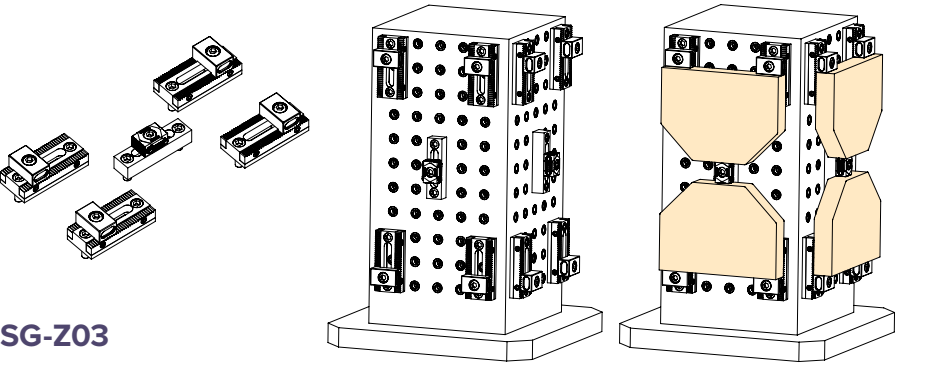
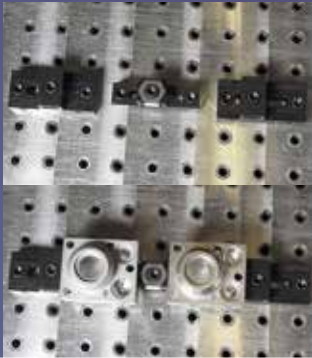
One more generic-purpose system that is available is the Grid System. Most of the modules are 25 mm high and have integrated parallels, making them optimal for clamping complex workpiece forms like plates.

The module interface is optimized for grid platform (12 mm positioning bushing and an M12 thread in a 50x50mm matrix). This interface has become one of the industry standards in workholding.



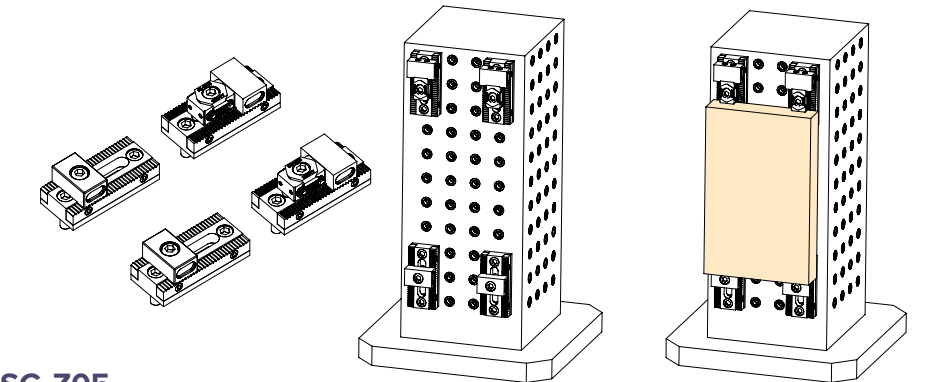
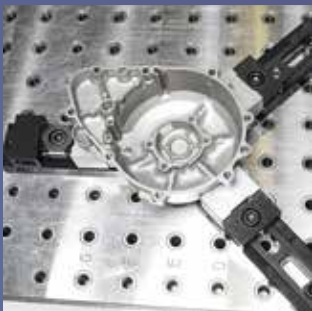
SG-Z02

code	pcs
GS-SA1	2
GCD-DS1	2



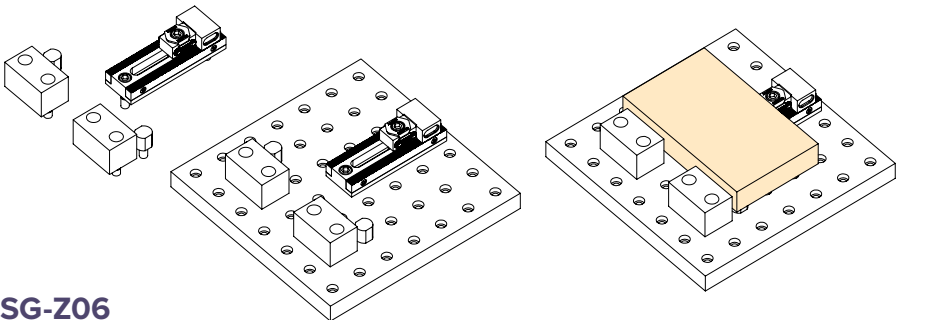
SG-Z03

code	pcs
GS-SA1	4
GCD-DS1	1



SG-Z05

code	pcs
GS-SA1	2
GCS-DS1	2



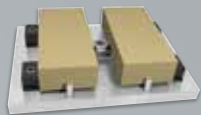
SG-Z06

code	pcs
GS-SF2	2
GCD-DS2	1
GP-1	2



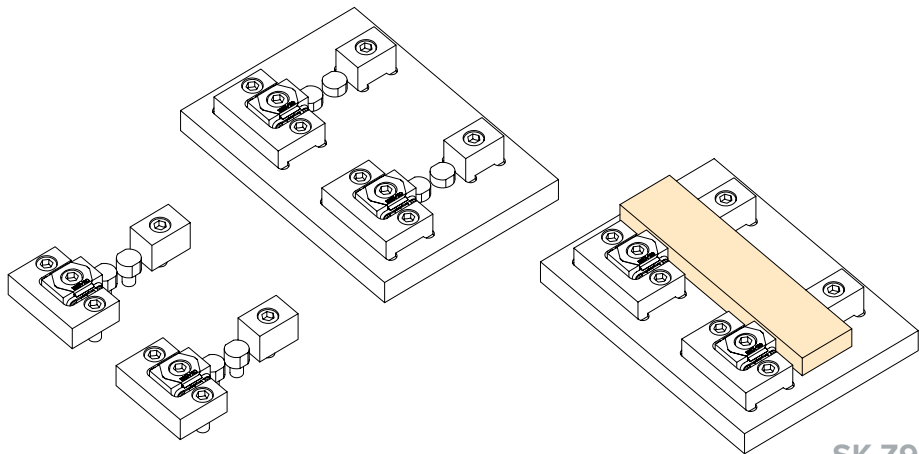
APPLICATIONS GRID SYSTEM

To make selection of the components easier, the OK-VISE team has selected some basic sets to enable an easy start with the Grid system. In the pictures below you can see the solutions created with each set. We recommend platforms of leading suppliers. The grid plate is normally not included in the set.



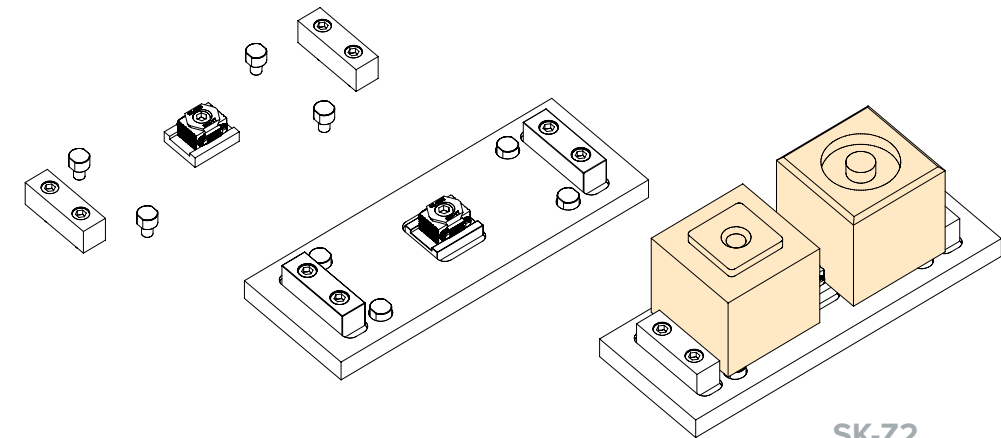
FIXTURE SETS
BLANK SYSTEM

code	pcs
KCS-DS1	2
KS-S1	2
KP-1	4



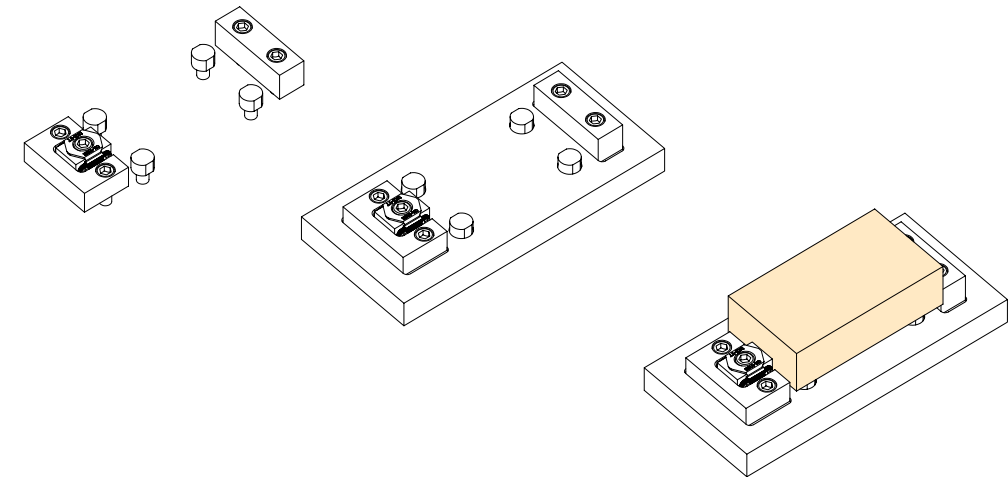
SK-Z9

code	pcs
KS-S2	2
KCS-DS1	1
KP-1	4

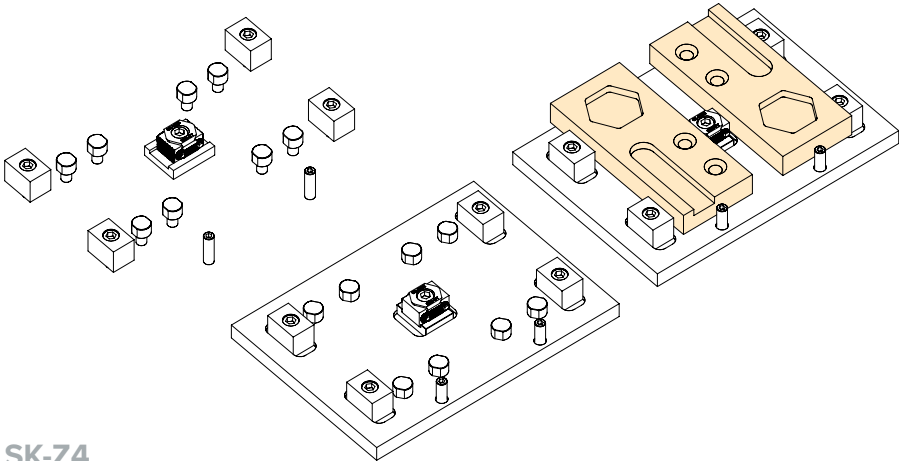


SK-Z2

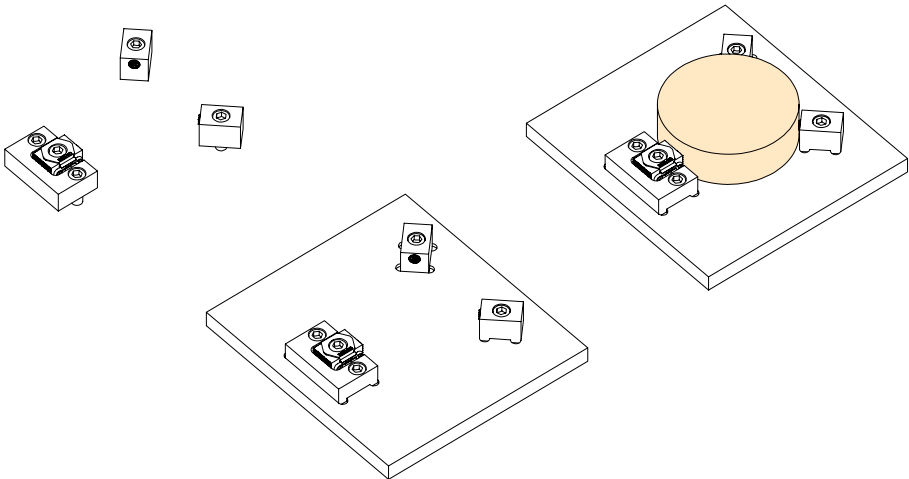
code	pcs
KS-S2	1
KCS-DS1	1
KP-1	4



SK-Z8



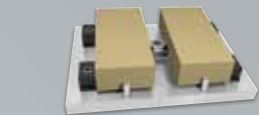
SK-Z4



SK-Z6

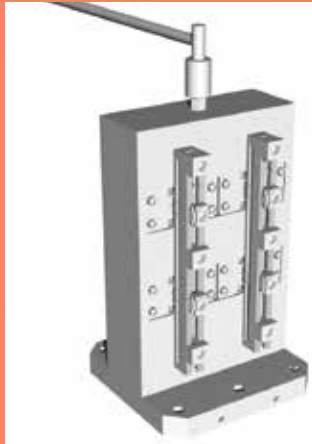
code	pcs
KS-S1	4
KCS-DS2	1
KP-1	8
KG-1	2

code	pcs
KS-R1	2
KCS-DR1	1



FIXTURE SETS
BLANK SYSTEM

APPLICATIONS AUTOMATION



Multi-Rail RM units + hydraulics.

Live system in horizontal machining center.



Grid System + hydraulics.

Live system in vertical machining center.



Blank system + hydraulics.

Decoupled system, typical in FMS systems.

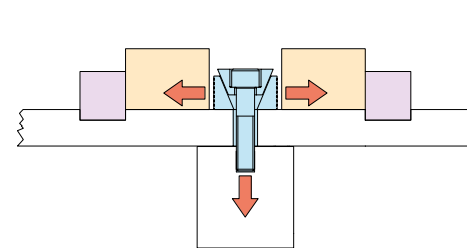
OK-VISE METHOD OF AUTOMATED CLAMPING

As the original inventor of the wedge-operated low-profile clamp, OK-VISE has introduced hydraulic actuators that are optimized to utilize the well-known properties of the OK-VISE clamp: extreme clamping force in a small space combined with the accuracy of the clamping force.

As an integral part of the OK-VISE Fixturing Concept, hydraulic actuators can be used to build truly modular fixtures.

Hydraulic clamping can be used in combination with

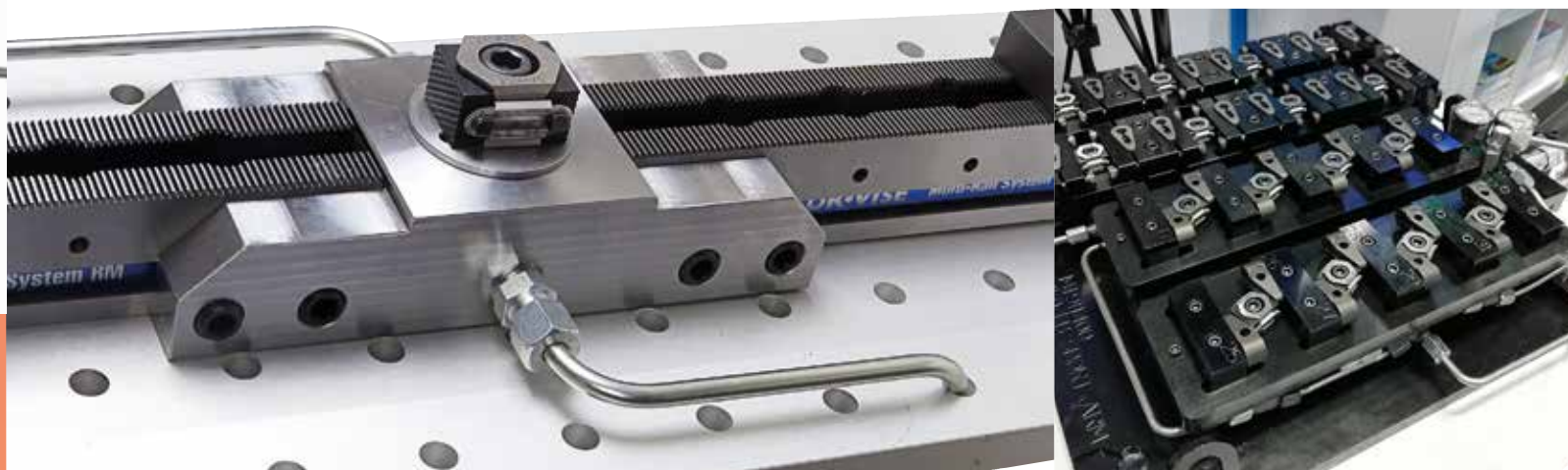
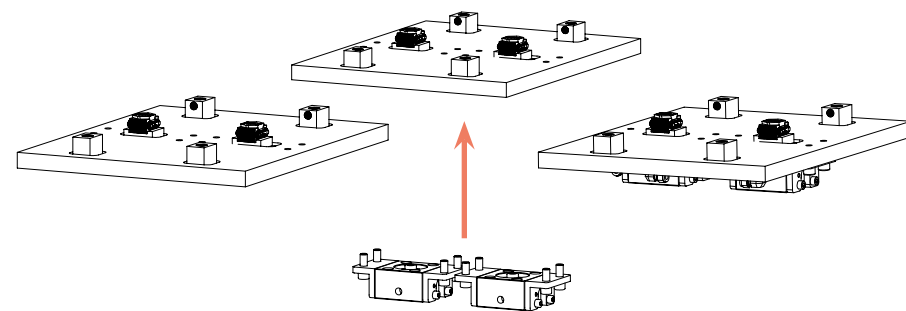
- Automated or manual workpiece loading
- Vertical or horizontal machining centers and 5-axis machines
- Live systems (continuous pressure supply) or decoupled systems



OK-VISE is continuously developing new automated modules for robotic loading, and also for manually operated systems where automation saves operator's loading time and improves ergonomics.

RETRO-FIT OPTION

When a manually operated fixture is designed in the proper way, OK-VISE hydraulic modules can also be installed afterwards in a simple manner. This is the easiest way to enter the world of automated clamping.



HYDRAULIC CLAMPING

Compared to manual clamping, a system using hydraulic clamping has a consistent clamping force on the workpiece, clamping is faster and enables automated ("robotic") loading of workpieces. Compared to other hydraulic systems on the market, the OK-VISE modules

- Are based on the world renowned wedge clamp
- Prevents compression of hydraulic oil due to its wedge design thus eliminating vibration
- Create clamping force with a pull stroke
- Return stroke is performed by spring

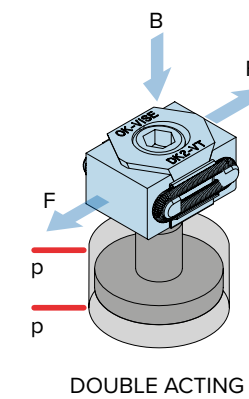
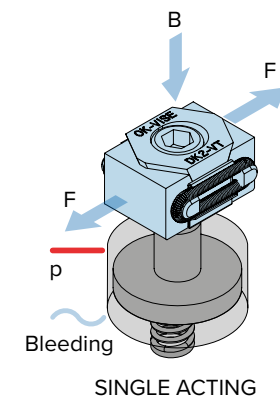
HA-Series actuator designed for 350 bar pressure, which results in compact size.



OK-VISE HYDRAULIC ACTUATORS (HA-)

Hydraulic pressure (p) is first converted to downwards force (B) and using the wedge clamp clamping force (F) is created in two directions. Just like in manual clamping, a stopper is needed on both sides of the clamp.

The simplest way of creating a hydraulic fixture is to use a hydraulic actuator in single acting installation. In some applications double acting installation may be needed.



CLAMPING FORCE VERIFICATION

Clamping force verification systems, like WIRELESS DIGIFORCE system, are sold to specific markets. OK-VISE has integrated the clamping force measurement directly into the fixturing components. The measuring unit sends the sensor data via long-range radio to a display unit. There minimum and maximum force alarms can alert the operator, and the machine tool simultaneously. Available as an optional module, SCADA software provides monitoring of clamping force history to enable efficient quality control.



INSTALLATION

We can supply the fixturing assembly with hydraulic actuators. Our partners worldwide take care of hydraulic installations. Some sample connection diagrams are available from support@ok-vise.com

FIXTURE PLATES, TOOLING BLOCKS, TRUNNION UNITS (RPS) AND ZERO-POINT SYSTEMS

In addition to fixturing components, we also offer fixture plates and workholding platforms such as tooling blocks, zero-point positioning systems (OK-LOCK) and trunnion units (RPS).

FIXTURE PLATES

With the OK-VISE FIXTURING CONCEPT, setup times can be reduced by quick modification of fixturing setup – which is typical when generic-purpose systems are being used, or by changing the entire fixture. For the latter case, several quick-coupling and zero-point systems are available to enable quick fixture change.

If fixture plates are used, in many cases it makes sense to clamp the workpieces to the fixture outside the machine “off-line” and then transfer the fixture with the workpieces to the machine. In this way the output of the machine can be easily maximized.

Tooling blocks and the Rotary Pallet System (RPS) from OK-VISE are examples of systems where the fixture plate concept has been successfully used. Fixture plates can be used to carry dedicated or generic-purpose fixtures.

FIXTURE PLATE

With very high-density, single directional machining using dedicated fixture plates can be useful. Dedicated fixtures on a fixture plate can also be an alternative when very complex work pieces are being clamped.

WORKHOLDING PLATFORMS

To install the fixturing components to the machining center, there is a variety of workholding platforms available. A wide range of tooling blocks, zero-point positioning systems (OK-LOCK) and trunnion units (RPS) can be offered by OK-VISE and our distributors. The face of workholding platforms can be T-slots, a grid patterns or simply a blank plate. Our fixturing components fit all platforms' geometries and face types.

WHY OK-VISE FIXTURING CONCEPT?

- Based on OK-VISE Clamping Method
- Both dedicated and generic-purpose
- Fixtures easily doable
- Adapts to all workholding platforms
- Optimized for rapid setup change
- Wide range of automatization options

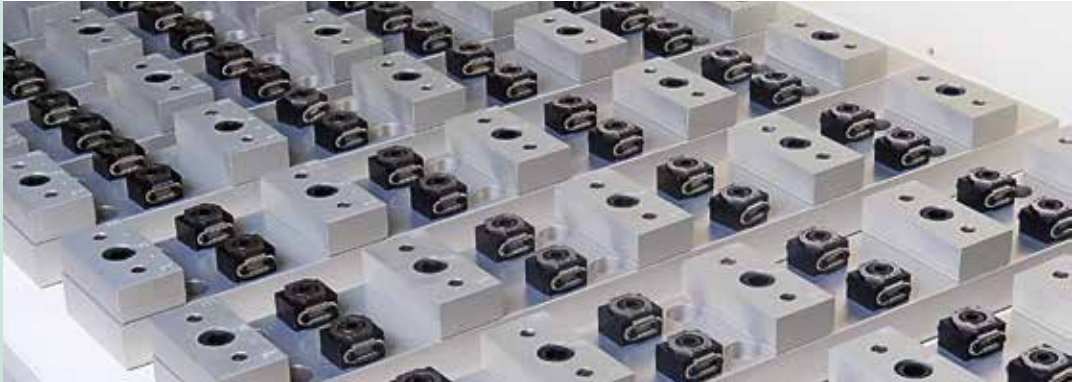
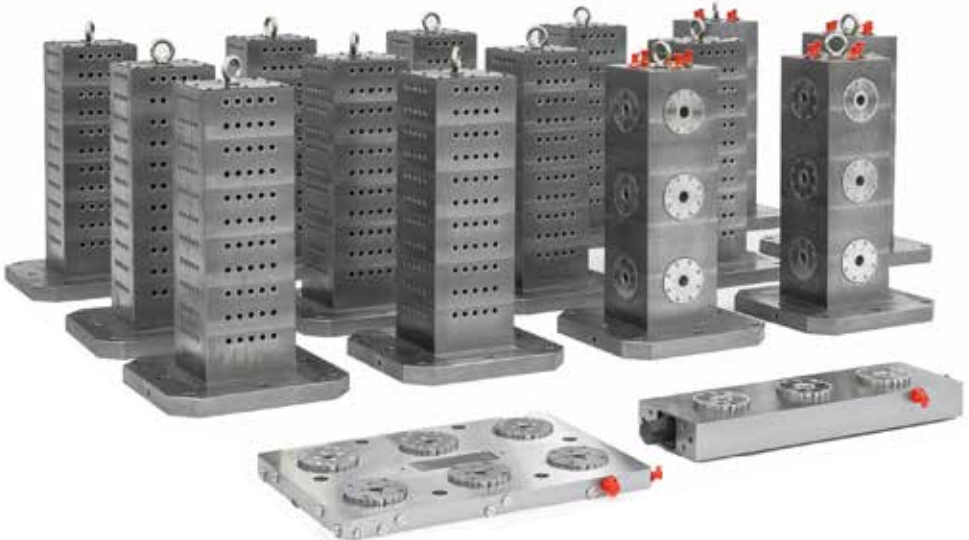
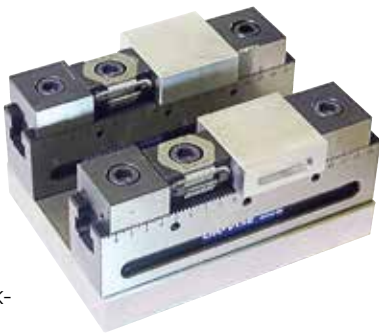


WEDGEMAN SELECTION TOOL

OK-VISE has designed an easy selection tool to help customers select the most suitable fixturing system for their needs.

1. Choose a workpiece design from the examples given.
2. Choose the platform you are using.
3. The most suitable component sets are shown.
4. To compare the sets and to obtain more detailed information, follow the links to the OK-VISE product webpages.

www.wedgeman.net



FIXTURE PLATE CONCEPTS & DEDICATED FIXTURING

Using fixture plate is especially recommended when dedicated fixture is used.

This is often the case when

- Most difficult forms are clamped
- Extreme density of workholding is needed

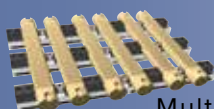
This leads to minimum setup time.

OK-VISE FIXTURING CONCEPT

BASED ON OK-VISE CLAMPING METHOD

GENERIC FIXTURING CONCEPTS

Multi-Rail RM System



Multi-Rail RH System

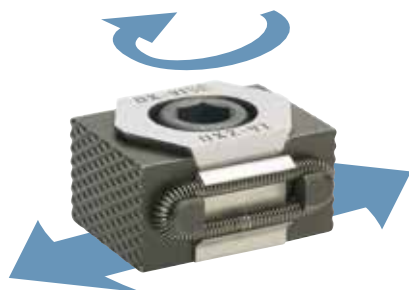


Grid Fixturing System

Combo-Rail

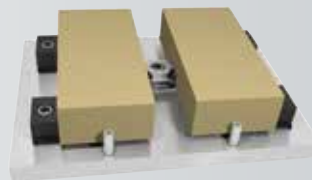


LOW-PROFILE CLAMPS



OK-VISE®
Clamping Method

COMPONENTS FOR DEDICATED FIXTURING



Blank Fixturing System

AUTOMATED CLAMPING & DIGIFORCE VERIFICATION

nents of any modern workholding system. In the machining industry the OK-VISE stands for ultimate quality.

A wide selection of information as well as the latest updates about our products are easily obtained from our website at: www.ok-vise.com

KYTOLA INSTRUMENTS OY, a sister company to OK-Vise Oy, has a long and proven history of designing and manufacturing high quality precision instruments.

www.kytola.com

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