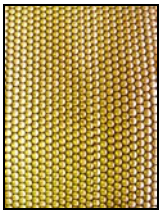
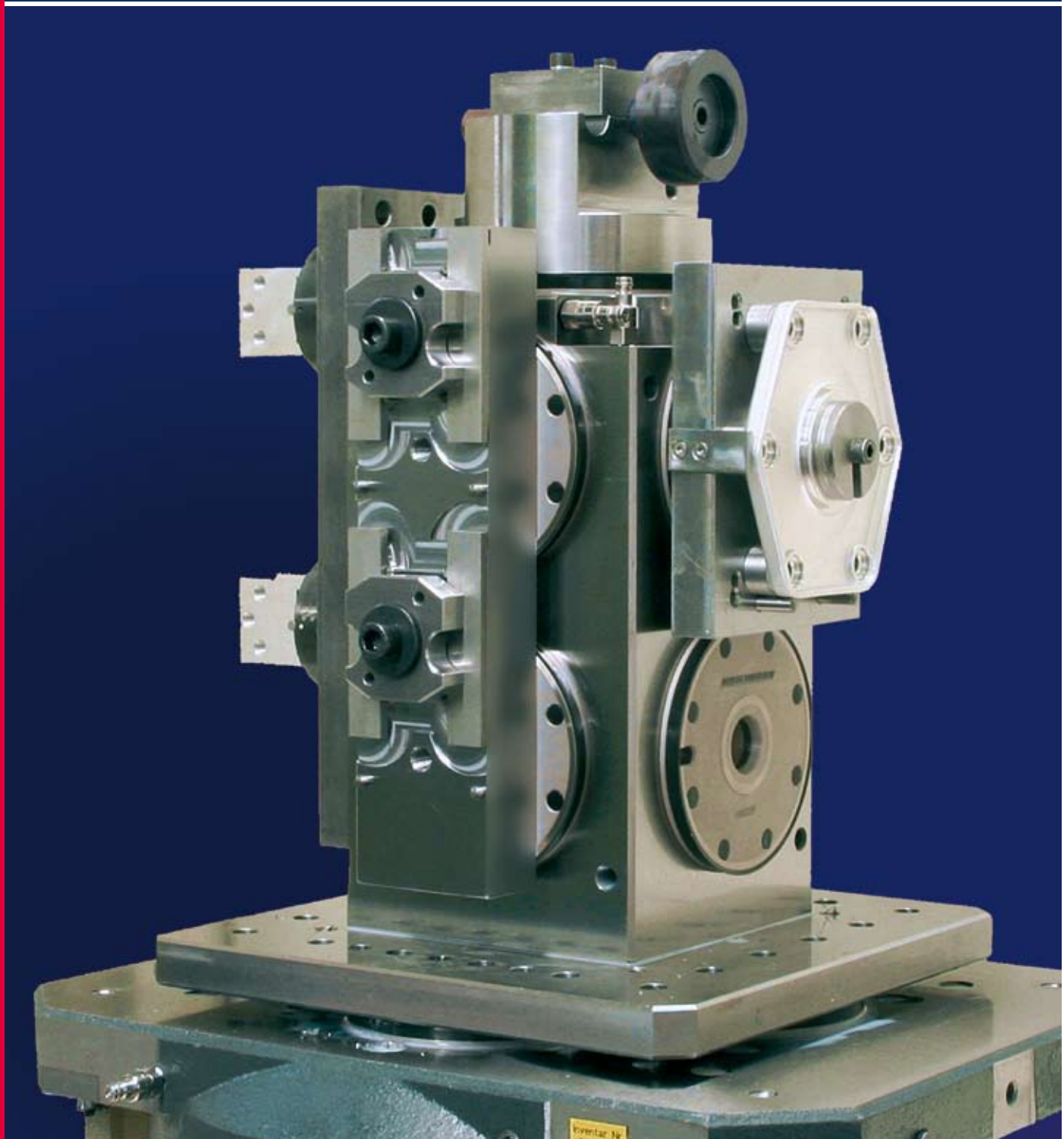
HIRSCHMANN



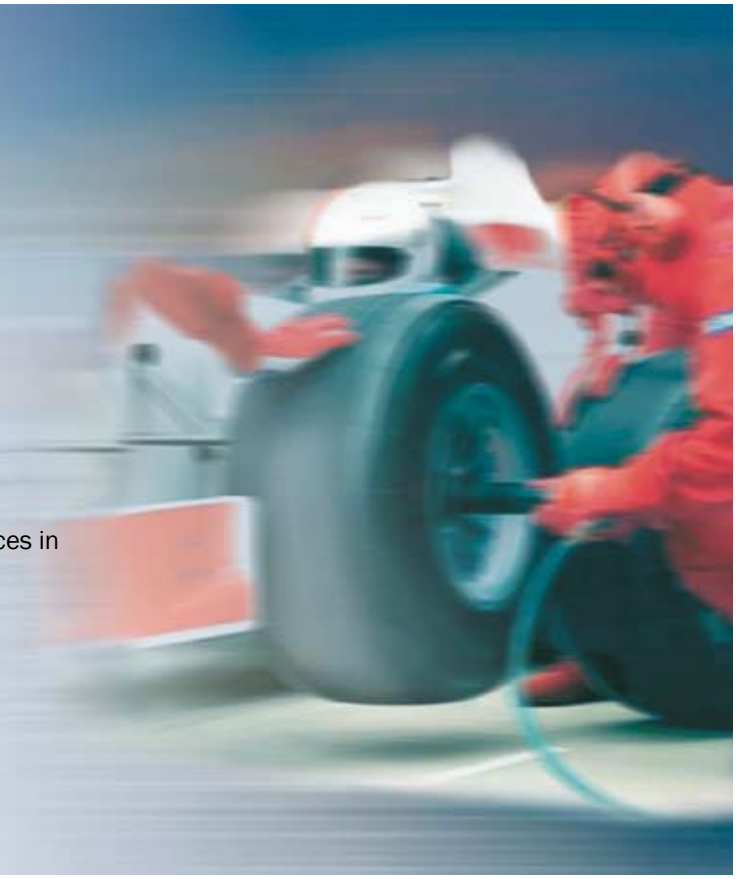
Catalogue NE 3608

FIXTURING SYSTEM 9000

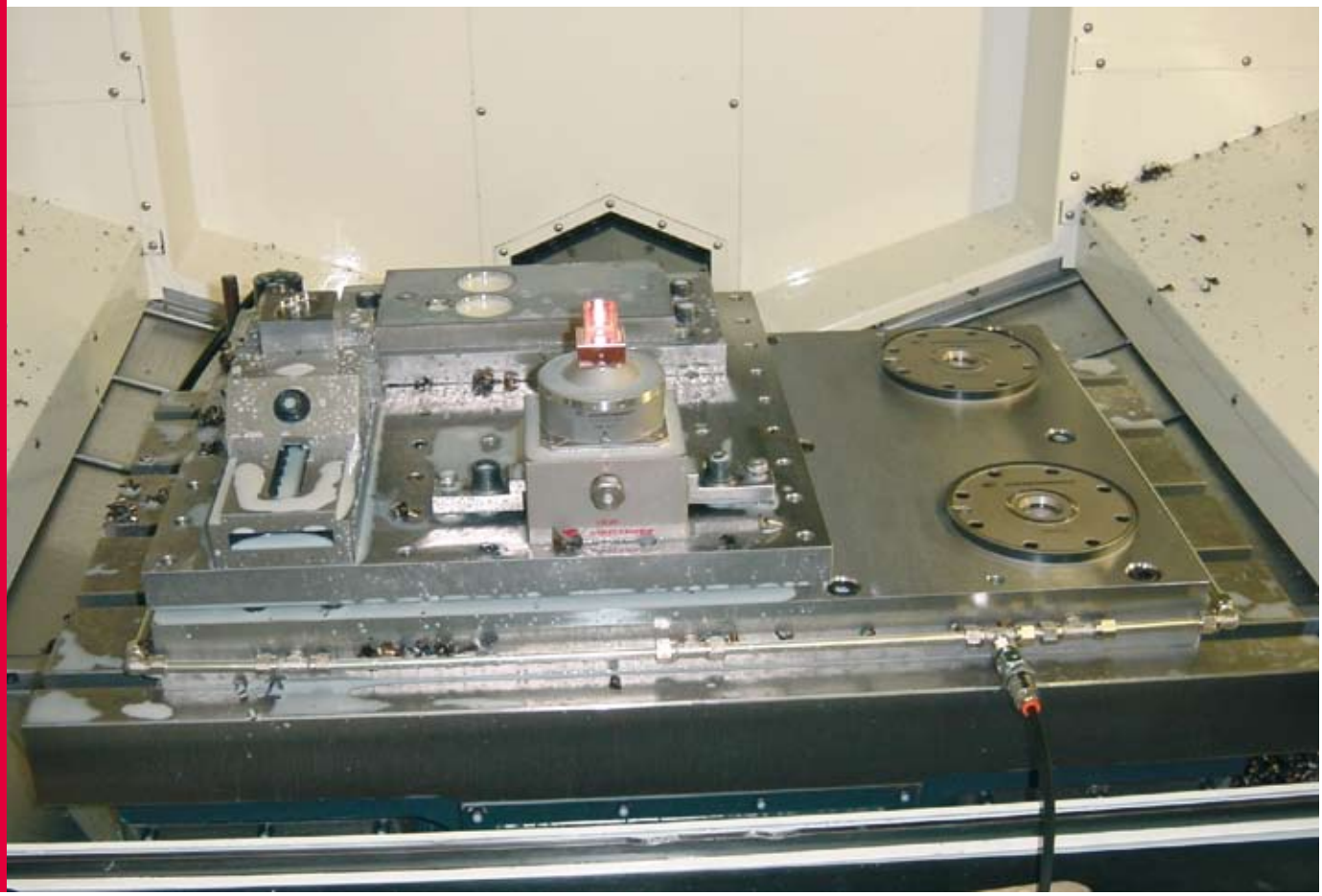
Modular Zero-Point Fixturing for Pallets, Workpieces and Fixtures



Changes
in Seconds



- Constant zero point without realignment
- Clamps and positions in one step
- Simultaneous production and preparation time
- Single and multiple set-up
- Flexible fabrication – exchanges fixtures or workpieces in seconds for interruptions for urgent orders



Fixturing System 9000

Operation
Most tools are supplied together with an operating guide. Correct operation cannot be ensured and danger to personnel and machine cannot be excluded unless these operating instructions or information given in this catalogue are observed.

Precision
The individual tool planes incorporate a hardened and precision ground Zero Point centering or compensating journal and separate Z-supports. This assures accurate positioning of each fixture with repetitive accuracy.

Service and Maintenance
Since the Fixturing System is subject to chemical and physical influences, maintenance and service has to be performed with special care.

Technical Modifications
All products shown in this catalogue are subject to ongoing improvements and developments; we reserve the right to make modifications without notice.

Quality according to EN 9100
All products of HIRSCHMANN GmbH are manufactured using the latest production methods. All products are submitted for EN 9100 (air and space industry standard) quality assurance.

Warranty
We provide a 12 month warranty for all Fixturing System parts starting from the invoice date, and assuming correct use and maintenance as specified has been observed. The warranty is restricted to replacement or repair, free of charge, of any defective parts. Claims arising from improper use or handling shall not be considered. Warranty claims must be submitted in writing.

Registered trademark:
Viton® is a registered trademark of DuPont Performance Elastomers.

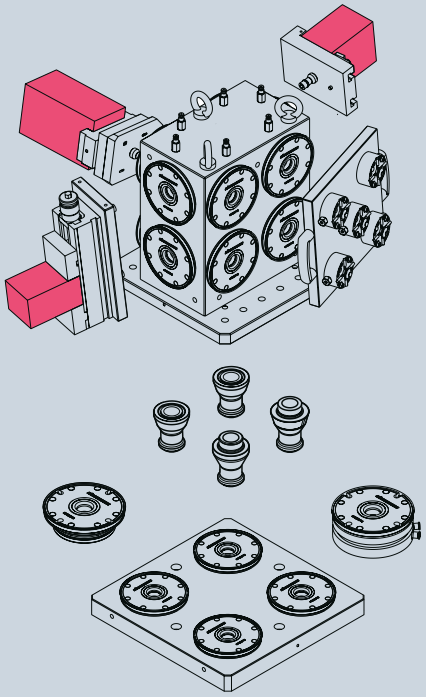
HIRSCHMANN GMBH

Modular Zero Point Fixturing System 9000 for machine tools

Introduction

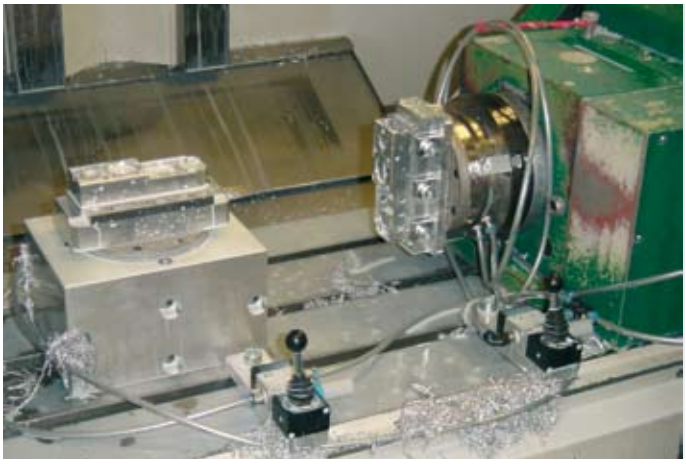
To compete in a global market, every effort must be made to utilize the full potential of today's "State of the Art" production systems. When workpieces are clamped manually in the machine tool without using a quick changing system, valuable machine set-up time is wasted and eroding profitability is extending the machine cost amortization.

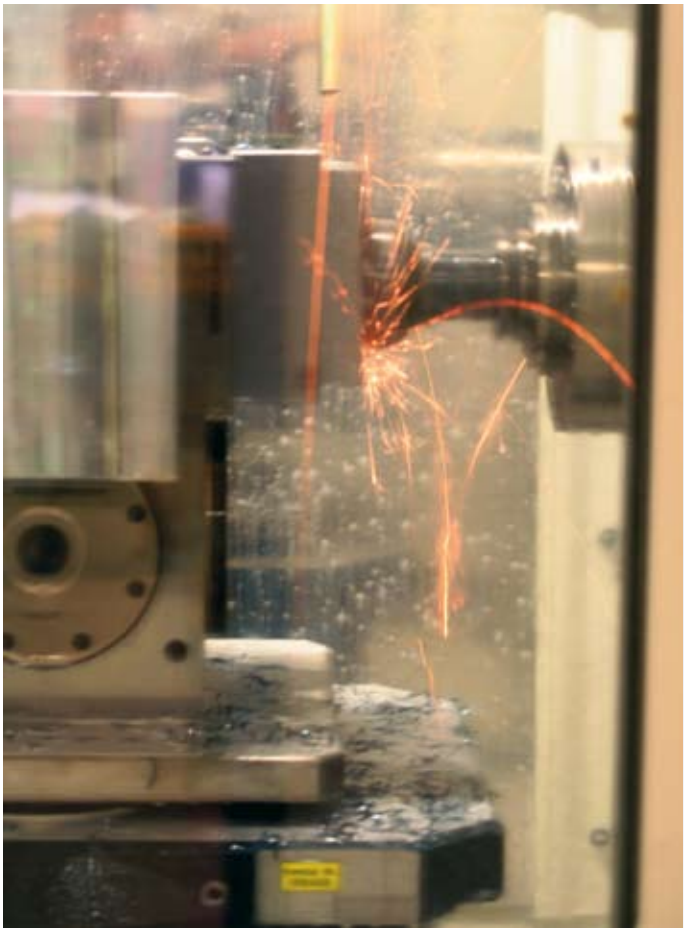
HIRSCHMANN provides perfected, well engineered solutions with the intelligent modular Fixturing System 9000 an universal cost effective work piece fixture system for all machine tools. By equipping a machine with single or multiple 9000 Zero Point clampers, workpieces or pallet mounted fixtures can be quickly changed to maximize productivity.



Features:

- **≤ 0.005 mm (.00019") repetitive accuracy**
- **fixed coordinate zero point**
- **changes in seconds**
- **high clamping forces for heavy machining**
- **ultimate stability for high speed machining**
- **optimal use of the machine table**
- **Fast – Precise – Effective**
  Used for HSM- milling- turning- EDM – Measuring machines, etc





Optimizing the Manufacturing Process

Why use a palletized fixturing system?

- Faster machine cycles with high flexibility.
- Pallets allow simultaneous loading of the next job or workpiece while machining.
- The exchange of workpieces to the machine mounted clampers takes place in seconds.
- No loss of accuracy when jobs are transfered from machine to machine
- Increased flexibility providing quick interruption of for urgent orders or measuring procedures.

Retool without HIRSCHMANN fixture system

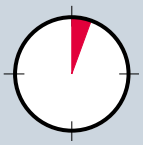
1. Remove the finished work piece
2. Clean the machine table.
3. Put a new workpiece onto the machine table
4. Install the new fixture or vise.
5. Align and pick up the coordinates of the workpiece with help of the machine (this costs a lot of time)
6. Start program

Start about 20–25 minutes

Retool with HIRSCHMANN fixture system

1. Open the system clamper(s) and remove the finished work piece.
2. Load the new system mounted and presetted work piece and close the clamper
3. Start program

Start about 2 minutes



Employment of the “Zero-Point” Fixture System 9000 guarantees high productivity of all machine tools.

Comparison of ways to optimize work holding in manufacturing process

	New cutting tools	Fixturing System	Automated loading
Cost	Low to medium	Medium	High
Advantage	Machining time faster	High machining time because of less down time	24 hours production
Effect	Shorter running time	Reduction of down time	Reduces down time
Yield	**Low**	**High**	**Very high**
Saving potential	→ **Low**	➡ **High**	➡ **Very high**

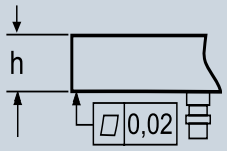
The optimization of the manufacturing process through the use of the Zero-Point Fixturing System 9000 guarantees higher output of the machine tool by a rather small investment.

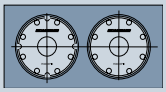
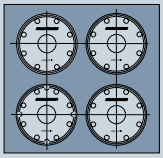
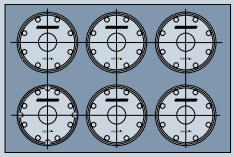
Technical specifications

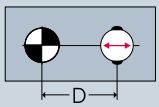
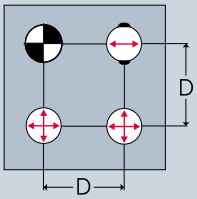
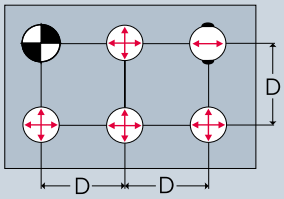
General Characteristics

The modular layout of single or multiple Zero Point clamping devises permits full flexible use of the machine tool. Small to large workpieces, fixtures and pallets can be easily configured for maximum use of the machine table.

Each clamper incorporates a precision solid bore (Zero Point) at the center and two precision “Z” reference rings. The x and y positioning of the workpieces and pallets is accomplished by using one Centering Journal and two dowel pins when a single clamper is used. When two or more clampers are employed to hold a single workpiece, fixture or pallet, one Centering Journal and one Compensating Journal are used. When three or more clampers are used to hold a single workpiece, fixture or pallet, Clamping Journals are used at the additional clampers.

Uses		
For: SM-, horizontal and vertical milling-, turning-, Boring-, EDM-Measuring etc.	**For clamping:** Work pieces, devices, and pallets with Minimum square or diameter ≥ 135mm Height: ≥ 25 mm Flatness: ≤ 0.02 mm Max. axial load: ≤ 1000 kg./per clamper	

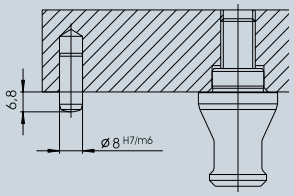
Clamper arrangement (examples)				
Zero Point center distance: (D) Minimum: 135 mm Standards: D=150 mm, D=200 mm, D=250 mm				
Used clamper(s)	H900xPI**4**K H900xPI**8**K	H900xPI**0**K H900xPI**4**K H900xPI**8**K	H900xPI**0**K H900xPI**4**K H900xPI**8**K	H900xPI**0**K H900xPI**4**K H900xPI**8**K

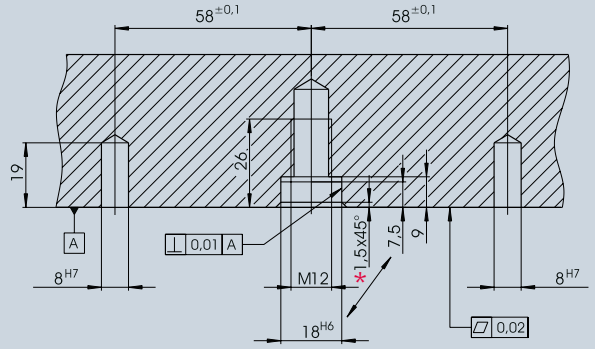
Journal (clamping stud) Requirements (type and number of journals for workpieces, fixtures and pallets)				
Journal centerline distance Tolerance of D dimension ± 0.01 mm				
Centering Journal H9030.1K (X, Y center position)	1	1	1	1
Compensating Journal H9031.1K (radial position)	–	1	1	1
Clamping Journal H9032.1K (non-positioning)	–	–	2	4
Dowel Pin ∅ 8m6 x 25 DIN EN 28734	2	–	–	–

Technical specifications

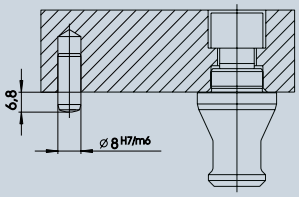
Manufacturing drawings for single clamper use. (Centering Journal and dowel pin data)

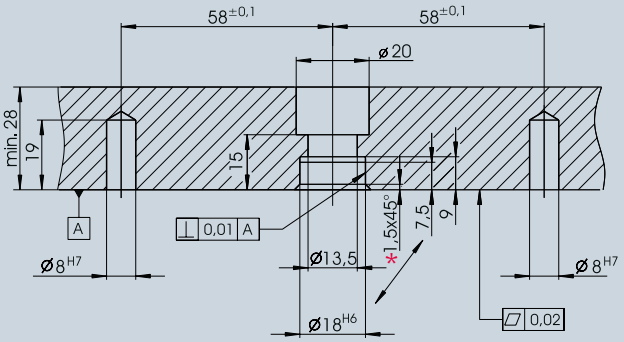
Single clamper use with:
Centering Journal H9030 .1K
Connection from below with set screw
(Thread in workpiece, fixture or pallet)





Single clamper use with:
Centering Journal H9030.1K
Connection from above with screw M12
(Thread in journal)
Screw strength class 10.9

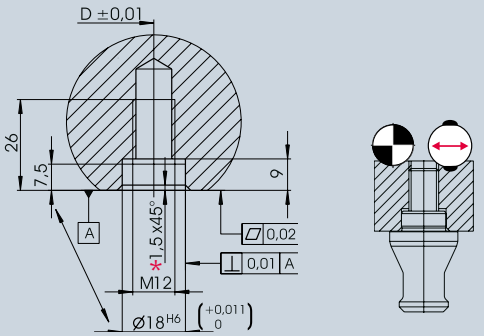




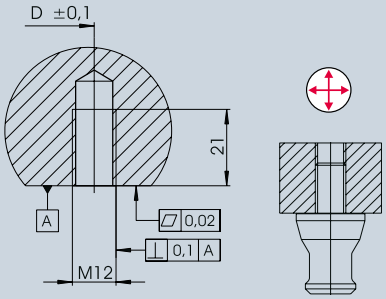
Manufacturing drawings for multiple clamper use. (Centering, Compensation and Clamping Journal data)

Multiple Clamper use with:
Centering Journal H9030.1K
Compensating Journal H9031.1K
Clamping Journal H9032.1K
Connection from below with set screw
(Thread in workpiece, fixture or pallet)

Centering Journal H9030.1K
Compensation Journal H9031.1K

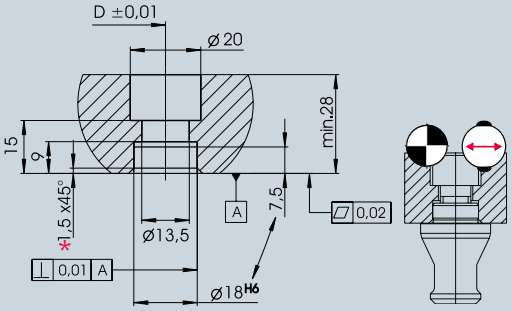


Clamping Journal H9032.1K

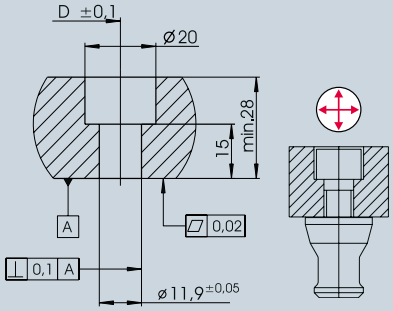


Multiple Clamper use with:
Centering Journal H9030.1K
Compensating Journal H9031.1K
Clamping Journal H9032.1K
Connection from above with screw M12
(Thread in journal)
Screw strength class 10.9

Centering Journal H9030.1K
Compensation Journal H9031.1K



Clamping Journal H9032.1K



9000 System clampers

General Characteristics

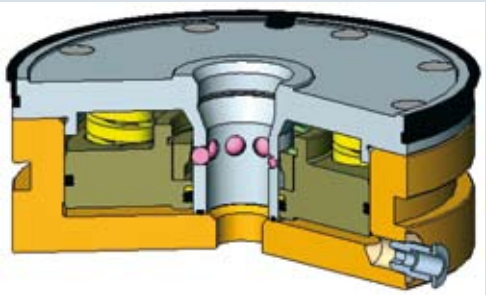
The clampers can be used on all types of machine tools. When provided with Viton® seals, the clamper series H 9001P**V**xK can be used for single or multiple clamping of workpieces in sink EDM applications. Because of the modular design of the clampers it is easily possible to solve nearly all clamping problems (workpiece size, workpiece weight, force by machining to the workpiece ...).

The clampers are designed as modular single clamper (H 900**1**xxxK) or integrated clamper (H 900**3**xxxK). Single clampers can be mounted onto the machine table with toe clamps (H 9040). The integrated clampers can be integrated directly into the machine table of the machine tool or into a base plate or in tomb stones. The clamping action is provided by spring pressure allowing the clampers to be normally closed. Two series of clampers are available. The H 9001**P** series are opened via pneumatic pressure (6 bar) while the H 9001H series (heavier springs) are opened via hydraulic pressure (20 – 50 bar). The hydraulic series are only provided with Viton® seals.

Three types of clamper configurations are standard, one without radial alignment slots, the other two with 4 and with 8 precision radial alignment slots. Clampers without slots are used when two or more clampers are used to clamp a single workpiece. Clampers with 4 or 8 slots can be used individually for both single workpieces or together for larger pallets. Single clampers with 4 slots can be used to index a workpiece or pallet every 90° and the ones with 8 slots every 45°.

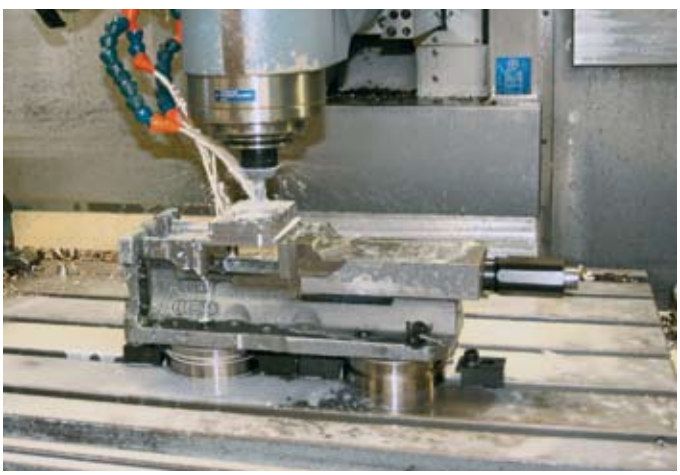
Cammon characteristics:

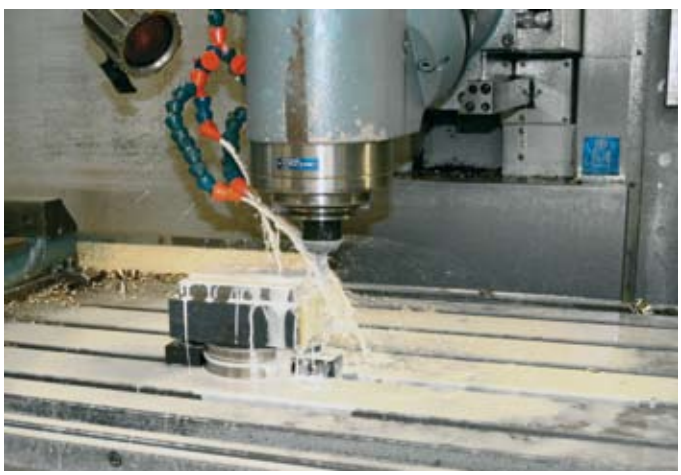
- **Used for HSM- milling- turning- EDM – Measuring machines, etc**
- **Repetitive accuracy ≤ 0.005 mm**
- **1000 kg axial load and up to 30000N clamping force per clamper**
- **Clamps via springs, open via pneumatic or hydraulic pressure**
- **Uses replaceable seals and air blow to protect against cooling agents**
- **Integrated X-, Y- and Z-referencing**
- **Anti-vibration**



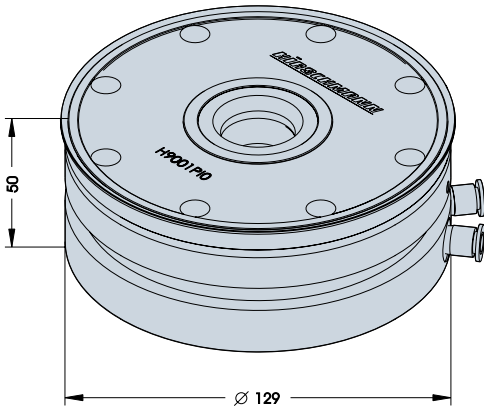
H9001PVI4K = Pneumatic modular single clamper with Viton® seals and four alignment slots

- K = for conical journals
- I 0 = without alignment slots (not usable as single clamper)
  I 4 = with four alignment slots (90 degrees dividing possible)
  I 8 = with eight alignment slots (45 degrees dividing possible)
- V = Viton® seal (for sinking EDM)
- P = Pneumatic clamper (clamping force 15 kN)
  H = Hydraulik-Spanner (clampin force 30kN)
- 1 = Modular single clamper
  3 = Integrated clamper





Pneumatic and Hydraulic H 9001 series clampers



H 9001PI0K Pneumatic Clamper

Without radial slots for multiple use only.
With NBR seals

Clamping force (by springs)	12500 N (2,800 lbs)
Repetitive accuracy	≤ 0.005 mm (.00019")
Pneumatic pressure for opening	6 bar (87 psi)
Max. axial load / clamper	1000 kg (2,200 lbs)

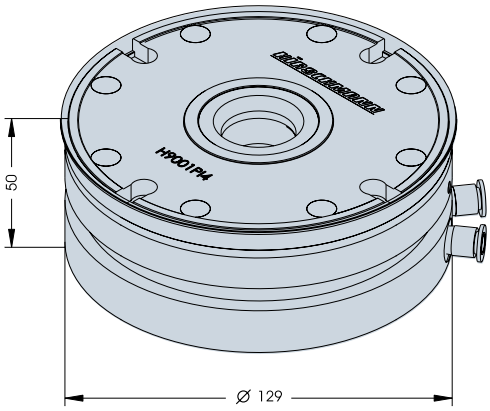
H 9001PVI0K Pneumatic Clamper

Same as H 9001PI0K but with Viton® seals for sink EDM-machines.

H 9001HI0K Hydraulic Clamper

Same as H 9001PVI0K but requires hydraulic pressure for opening.

Clamping force (by springs)	30000 N (6,750 lbs)
Hydraulic pressure for opening	min. 20 – max. 50 bar



H 9001PI4K Pneumatic Clamper

With 4 radial slots for 90° indexing.
Single or multiple use with NBR seals

Clamping force (by springs)	.12500 N (2,800 lbs)
Repetitive accuracy	≤ 0.005 mm (.00019")
Pneumatic pressure for opening	6 bar (87 psi.)
Max. axial load / clamper	1000 kg (2,200 lbs)

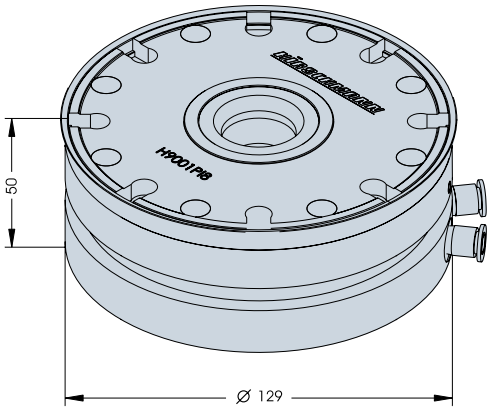
H 90001PVI4K Pneumatic Clamper

Same as H 9001PI4K but with Viton® seals for sink EDM-machines

H 9001HI4K Hydraulic Clamper

Same as H 9001PVI4K but requires hydraulic pressure for opening.

Clamping force (by springs)	30000 N (6,750 lbs)
Hydraulic pressure for opening	min. 20 – max. 50 bar



H 9001PI8K Pneumatic Clamper

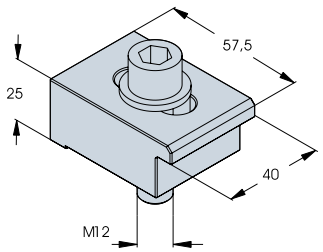
Same as H 9001PI4K but with 8 radial slots for 45° indexing

H 9001PVI8K Pneumatic Clamper

Same as H 9001PVI4K but with 8 radial slots for 45° indexing

H 9001HI8K Hydraulic Clamper

Same as H 9001HI4K but with 8 radial slots for 45° indexing



H 9040 Toe Clamp Set (4 pcs)

Toe clamps including M12x45 screws for mounting the H 9001 series clampers to the machine table.

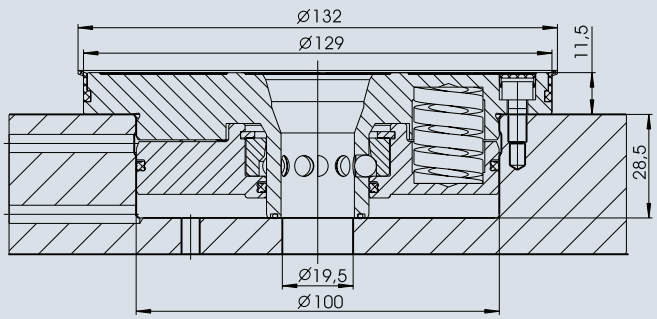
Pneumatic and Hydraulic H 9003 series integrated clampers

General Characteristics

The H 9003xKseries clampers come ready to be integrated into devises like pallet bases, tombstones, machine tool tables, etc. They can be mounted with the clamping surface projected above or even with the devise surface. When provided with Viton® seals, the clamper series H 9003P**V**IxK can be used for single or multiple clamping of workpieces in sink EDM applications.

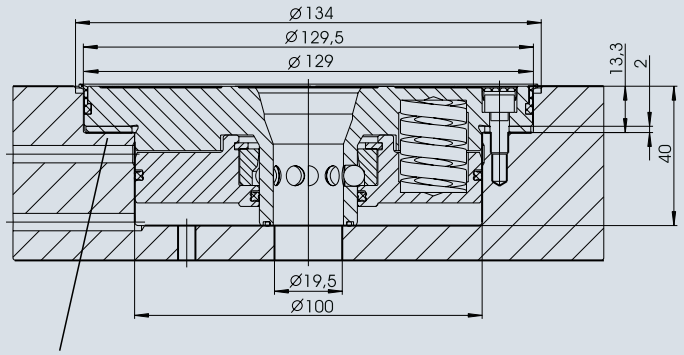
The H 9003PxK series are actuated in the same manner as the H 9001xK clampers. The pallet bases, tombstones, machine tool tables, etc must be constructed with the necessary pneumatic or hydraulic lines and connections.
The H 9003xK integrated clampers are available with the same configurations and characteristics as the H 9001xK series. One without radial alignment slots, the other two with 4 (90° indexing) and with 8 (45° indexing) precision radial alignment slots.

Installation with 11.5 mm projection



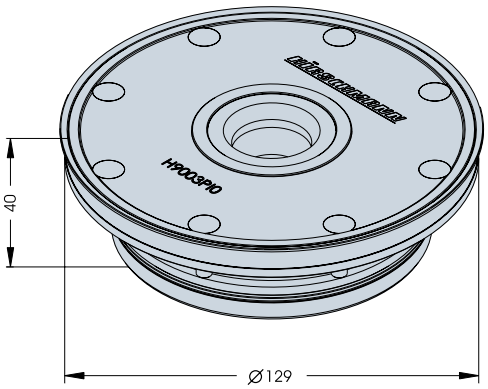
Detailed installation diagram upon request.

Installation without projection



Calibration ring H 9020 for height adjustment

Pneumatic and Hydraulic H 9003 series integrated clampers



H 9003PI0K Pneumatic Clamper

Without radial slots for multiple use only. With NBR seals.

Clamping force (by springs)	12500 N (2,800 lbs)
Repetitive accuracy	≤ 0.005 mm (.00019")
Pneumatic pressure for opening	6 bar (87 psi)
Max. axial load	1000 kg (2,200 lbs)

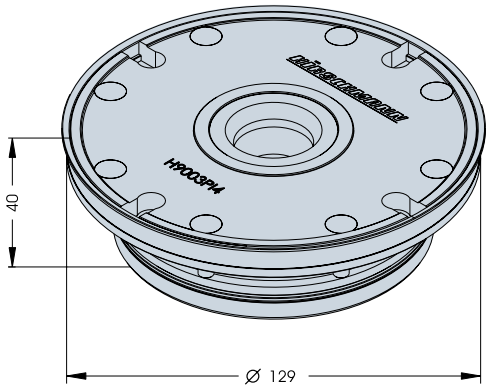
H 9003PVI0K Pneumatic Clamper

Same as H 9003PI0K but with Viton® seals for sink EDM-machines.

H 9003HI0K Hydraulic Clamper

Same as H 9003PVI0K but requires hydraulic pressure for opening.

Clamping force (by springs)	30000 N (6,750 lbs)
Hydraulic pressure for opening	min. 20 – max. 50 bar



H 9003PI4K Pneumatic Clamper

With 4 radial slots for 90° indexing. Single or multiple use with NBR seals.

Clamping force (by springs)	12500 N (2,800 lbs)
Repetitive accuracy	≤ 0.005 mm (.00019")
Pneumatic pressure for opening	6 bar (87 psi.)
Max. axial load	1000 kg (2,200 lbs)

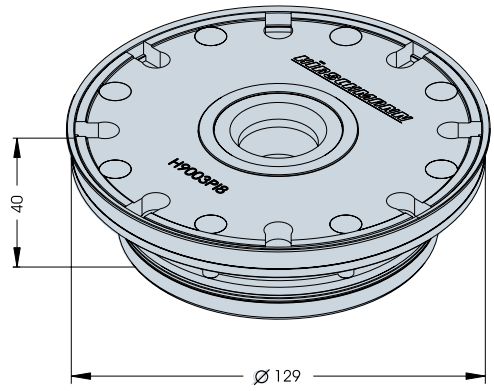
H 90003PVI4K Pneumatic Clamper

Same as H 9003PI4K but with Viton® seals for sink EDM-machines.

H 9003HI4K Hydraulic Clamper

Same as H 9003PVI4K but requires hydraulic pressure for opening.

Clamping force (by springs)	30000 N (6,750 lbs)
Hydraulic pressure for opening	min. 20 – max. 50 bar



H 9003PI8K Pneumatic Clamper

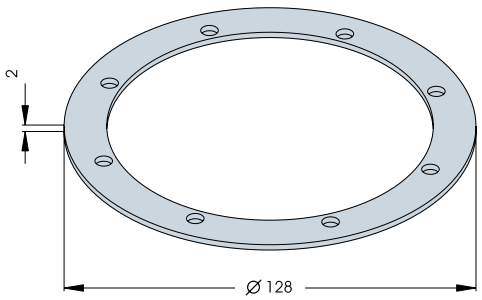
Same as H 9003PI4K but with 8 radial slots for 45° indxing.

H 9003PVI8K Pneumatic Clamper

Same as H 9003PVI4K but with 8 radial slots for 45° indexing.

H 9003HI8K Hydraulic Clamper

Same as H 9003HI4K but with 8 radial slots for 45° indexing.



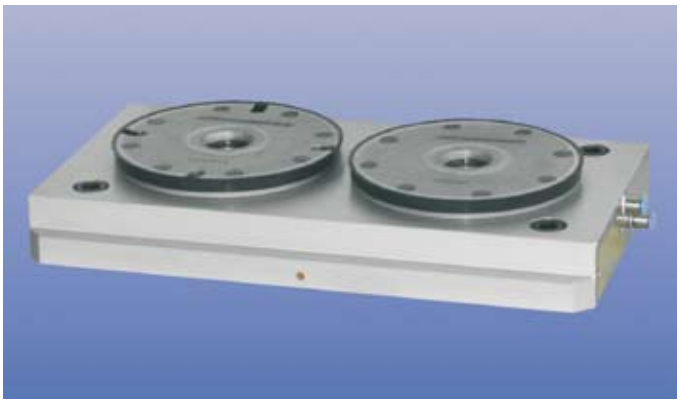
H 9020 Calibration ring

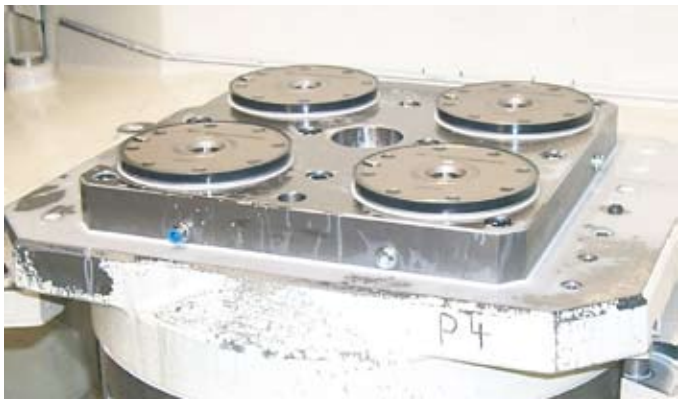
Used to calibrate the height of H 9003 clampers installed without projection.

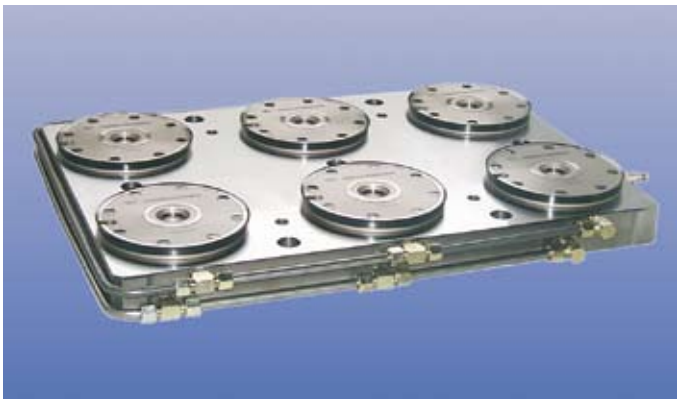
Clamping bases

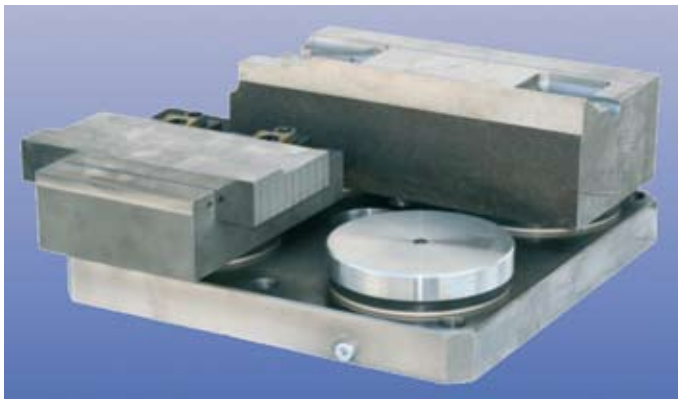
General Characteristics

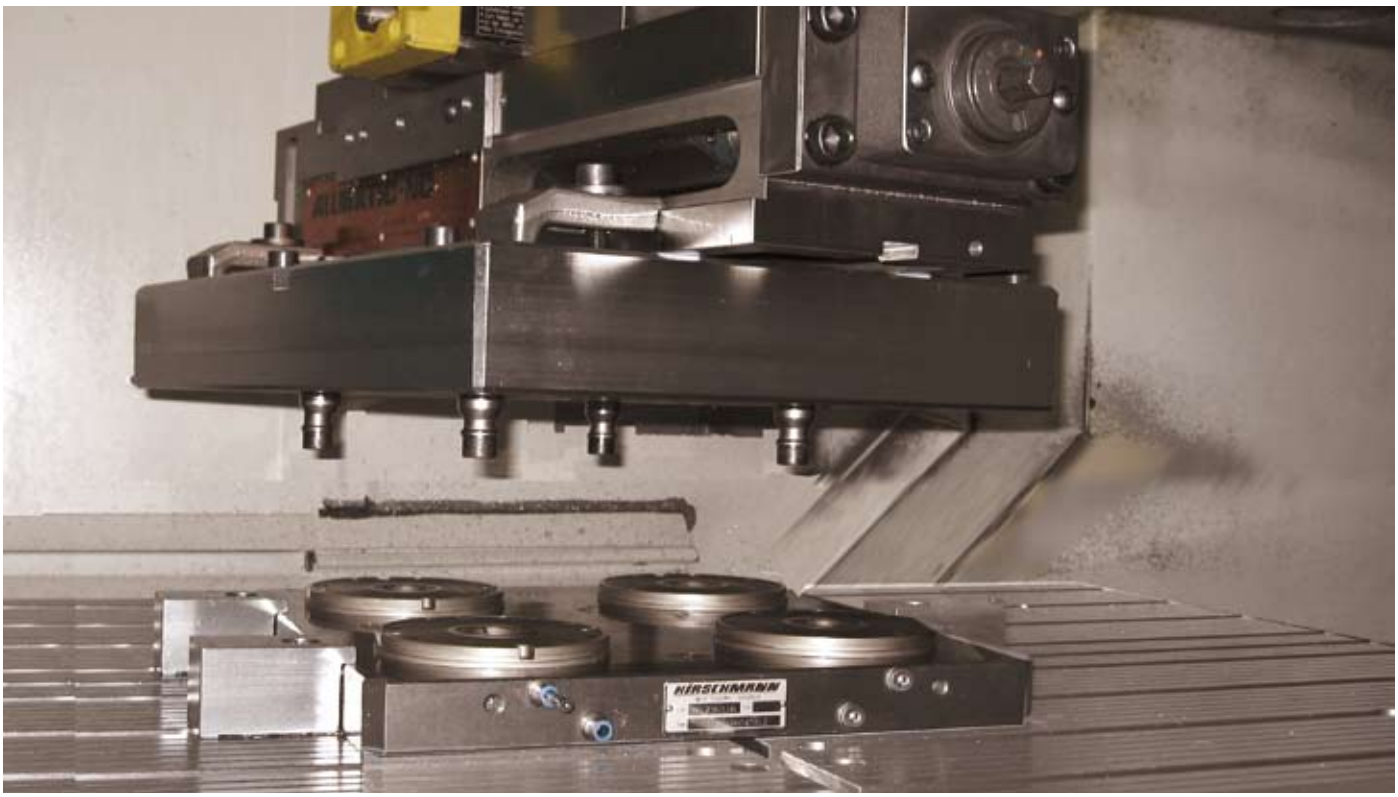
HIRSCHMANN offers standard clamping bases of two or more series integrated clampers. The bases can be readily secured to a machine table by toe clamping or integral screws located above the table slots. Standard overall height of the bases is 50 mm with clamper center line spacing at 150, 200 and 250 mm. Other centerline spacing available upon request.



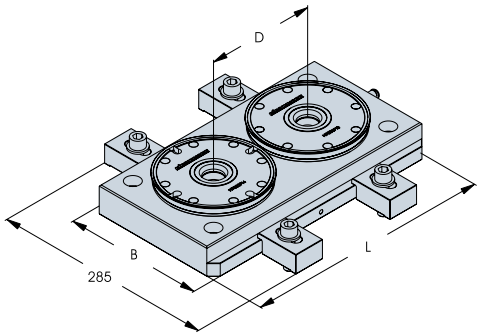








Clamping bases



H 93P.1014.15K Two position clamper base

With 2 pneumatic clampers (1) H 9003PI4 and (1) H 9003PI0
Clamper centerline D = 150 mm.

Dimensions (L x B)	320 x 180 mm
Clamping force	(2 x 12500 N) 25000N
Positioning accuracy	≤ 0.005 mm (.00019")
Pneumatic pressure for opening	6 bar (87 psi)
Max. axial load/clamper	(2 x 1000 kg) 2000 kg (4,400 lbs)

H 93P.1014.20K Two position clamper base

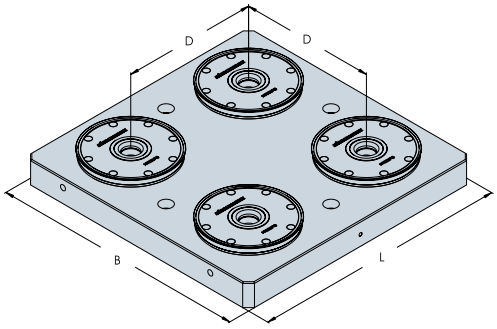
Same as H 93P.1014.15K but with clamper centerline D = 200 mm

Dimensions (L x B)	370 x 180 mm

H 93P.1014.25K Two position clamper base

Same as H 93P.1014.15K but with clamper centerline D = 250 mm

Dimensions (L x B)	420 x 180 mm



H 93P.3014.15K Four position clamper base

With 4 pneumatic clamps (1) H 9003PI4 and (3) H 9003PI0
Clamper centerline D = 150 mm

Dimensions (L x B)	300 x 300 mm
Clamping force	(4 x 12500 N) 50000 N
Positioning accuracy	≤ 0.005 mm (.00019")
Pneumatic pressure for opening	6 bar (87 psi)
Max. axial load/clamper	(4 x 1000 kg) 4000 kg (8,8000 lbs)

H 93P.3014.20K Four position clamper base

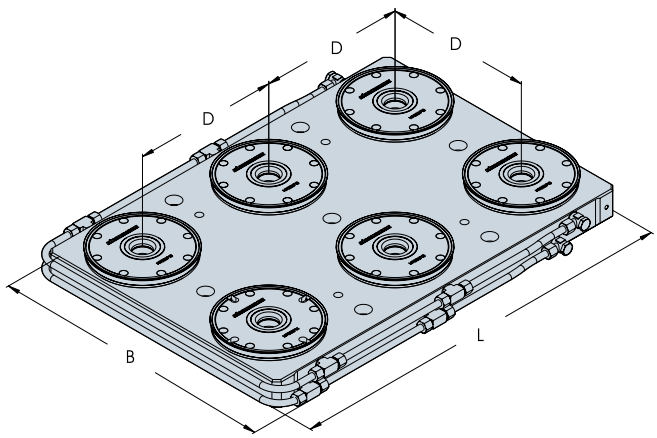
Same as H 93P.3014.15K but with clamper centerline D = 200 mm

Dimensions (L x B)	350 x 350 mm

H 93P.3014.25K Four position clamper base

Same as H 93P.3014.15K but with clamper centerline D = 250 mm

Dimensions (L x B)	400 x 400 mm



H 93P.5014.15K Six position clamper base

With 6 pneumatic campers (1) H 9003PI4 and (5) H 9003PI0
Clamper centerline D = 150 mm

Dimensions (L x B)	440 x 350 mm
Clamping force	(6 x 12500 N) 75,000 N
Positioning accuracy	≤ 0.005 mm (.00019")
Max. axial load/clamper	(6 x 1000 kg) 6,000 kg (13,200 lbs)

H 93P.5014.20K Six position clamper base

Same as H 93P.5014.15K but with clamper centerline D = 200 mm

Dimensions (L x B)	540 x 400 mm

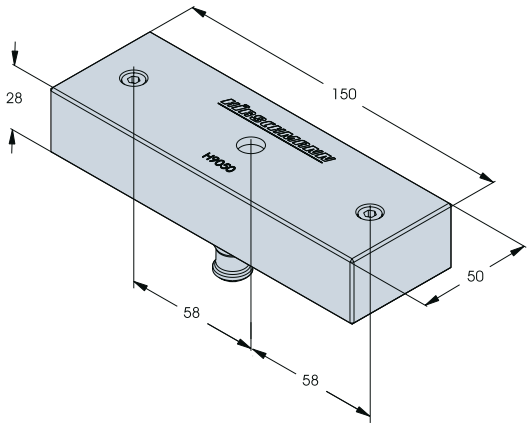
H 93P.5014.25K Six position clamper base

Same as H 93P.5014.15K but with clamper centerline D = 250 mm

Dimensions (L x B)	640 x 450 mm

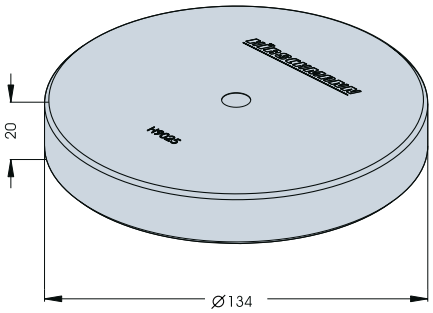
Other centerline distance available upon request.

Clamper accessories



H 9050K Alignment Gauge

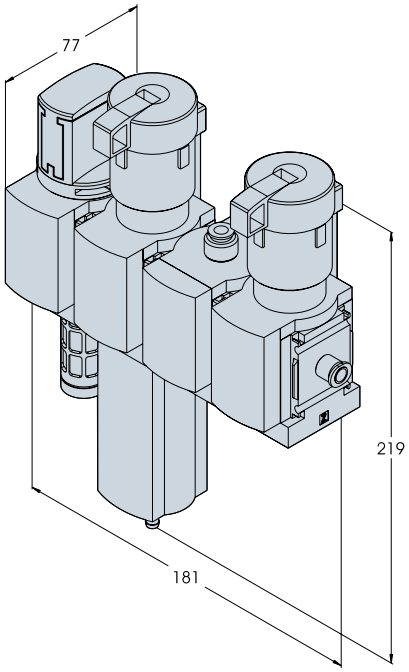
Used to align each clamper in the X or Y direction for individual use. Includes H 9030.1K clamping and centering journal.



H 9025K Cover

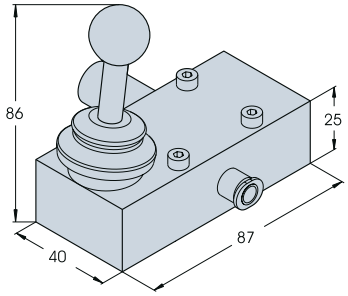
Cover with H 9032.1K clamping journal. Protects the seal and the clamping area of the H 9001.. and H 9003.. clampers while not used.

Clamper accessories



H 9060P Pneumatic service unit

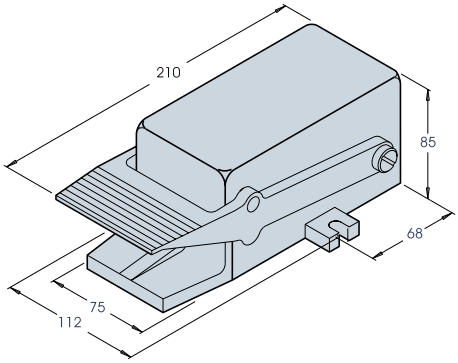
Filter, dryer pressure regulator unit with separate adjustment for clamping (6 bar) and blocking air.



H 9061P Pneumatic control unit

Manual control unit for opening and closing for pneumatic clampers H 9001Pxx and H 9003Pxx.

Max. input pressure 7 bar



H 9062P Foot switch

Manual foot control unit for opening and closing for pneumatic clampers H 9001P ...and H 9003P...

Max. input pressure 7 bar

H 9070H Hydraulic unit (without picture)

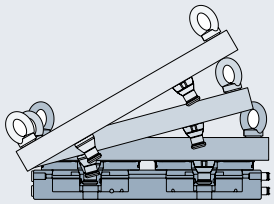
Operates the hydraulic clamp H 9001Hxx and H 9003Hxx.

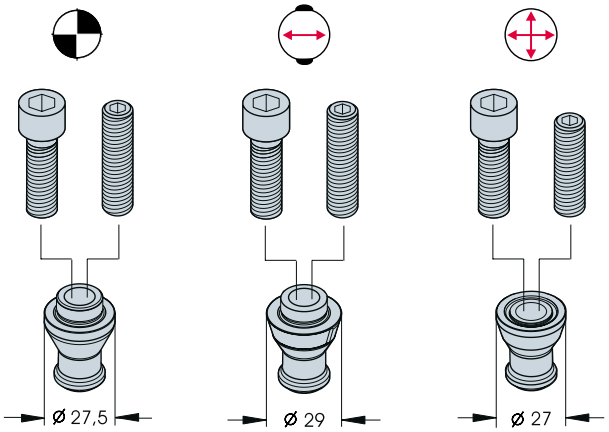
Hydraulic pressure 40 bar

Journals

Centering-, Compensating- and Clamping Journals

The centering, compensating and clamping journals of the H 903x1K series can be mounted from above (with a M12 socket head cap screw) or below (with a M12 set screw). The short and angular compact geometry of the journals afford fast ‚cant' free manual and automatic loading and unloading of single and multiple clampers.





H 9030.1K H 9031.1K H 9032.1K

Screw connection from below (with set screw)

Screw connection from above (with screw M12)

H 9030.1K Centering Journal

Clamping and centering journal (X-, Y-positioning) . One required per set-up. Includes one M12x30 screw (strength class 10.9) and one M12x40 (DIN913) set screw.

H 9031.1K Compensating Journal

Clamping and locating journal used for radial alignment when two or more clampers are used for one fixture. One required per multiple clamper fixture. Includes one M12x30 (screw strength class 10.9) and one M12x40 (DIN913) set screw.

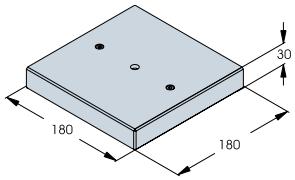
H 9031.1K Clamping Journal

Clamping journal without alignment. Used for clamping when three or more clampers are used for one fixture. Required for the third and additional clampers. Includes one M12x35 screw (strength class 10.9) and one M12x35 (DIN913) set screw

Notice

The cylindrical center journals H9030, H9030.1, compensation journals H9031, H9031.1 and clamping journals H9032, H9032.1 for the 9000 series clampers with straight cylindrical references are still available.

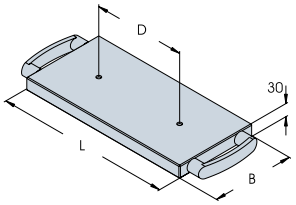
Pallets



H 9.1818K Pallet

Aluminum pallet including (1) H 9030.1K journal and 2 pins. For single clamper base.

Dimensions (L x B)	180 x 180 mm
Parallelism	0.1 mm
Weight	about 3 kg



H 9.3218.15K Pallet

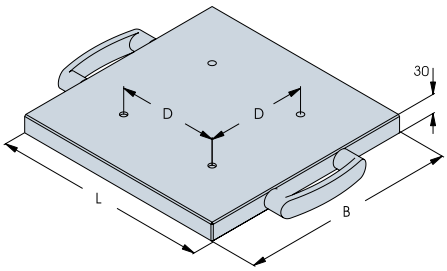
Aluminum pallet including (1) H 9030.1K and (1) H 9031.1K Journals. For H 93P.1014.15K clamper base

Dimensions (L x B)	320 x 180 mm
Journal centerline distance (D)	150 mm
Parallelism	0.1 mm
Weight	about 5 kg

H 9.3818.20K Pallet

Same as H 9.3218.15K for H 93P.1014.20K clamper base

Dimension (L x B)	380 x 180 mm
Journal centerline distance (D)	200 mm
Weight	about 6 kg



H 9.3232.15K Pallet

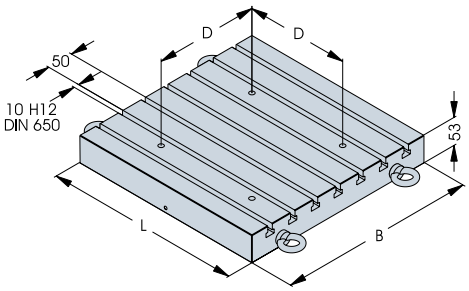
Aluminum pallet including (1) H 9030.1K, (1) H 9031.1K and (2) H 9032.1K Journals. For H93P.3014.15K clamper base

Dimensions (L x B)	320 x 320 mm
Journal centerline distance (D)	150 mm
Parallelism	0.1 mm
Weight	about 9 kg

H 9.3838.20K Pallet

Same as H 9.3232.15K but for H 93P.3014.20K clamper base

Dimensions (L x B)	380 x 380 mm
Journal centerline distance (D)	200 mm
Weight	about 13 kg



H 9.3232T.15K T-slot pallet

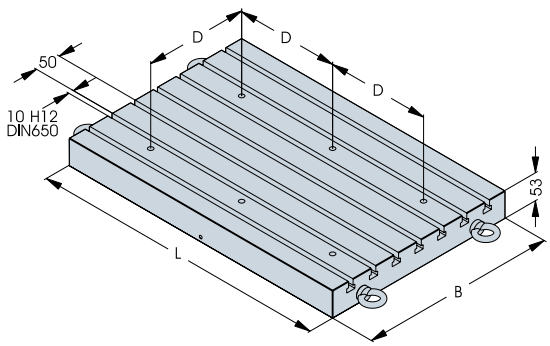
Aluminum pallet with 6 T-slots 10mm (H12)
Including (1) H 9030.1K, (1) H 9031.1K and (2) H 9032.1K Journals. For H 93P.3014.15K clamper base.

Dimensions (L x B)	320 x 320 mm
Journal centerline distance (D)	150 mm
Parallelism	0.02 mm
Weight	about 14 kg

H 9.3838T.20K T-slot pallet

Same as H 9.3232T.15K but with 7 T-slots 10mm (H12)
For H 93P.3014.20K clamper base

Dimensions (L x B)	380 x 380 mm
Journal centerline distance (D)	200 mm
Weight	about 20 kg



H 9.5838T.20K T-slot pallet

Aluminum pallet with 7 T-slots 10mm (H12).
Including (1) H 9030.1K, (1) H 9031.1K and (4) H 9032.1K Journals. For H 93P.5014.20K clamper base

Dimensions (L x B)	580 x 580 mm
Journal centerline distance (D)	200 mm
Weight	about 30 kg

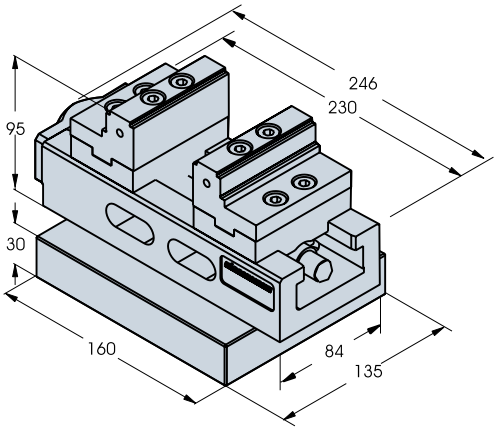
Self Centering Vice

Self Centering Vice H9.1613ZS

This precision self centering vice allows a cost effective and universal method to quickly clamp different types of work pieces for 5 sided machining. Mounted on a pallet it is ready for use in our System 9000 Zero Point reference system for manual or automated loading.
The standard 80 mm width reversible jaws allow a wide range of clamping possibilities. Optional Prism Jaw replacements are available for holding round parts, Raw Jaws for custom design and Universal Jaws with additional features. Optional jaws of 125 mm width are also available as well as Twinload Jaws for holding duplicate parts simultaneously.

Features:

- **Centering accuracy 0,015 mm**
- **Clamping force up to 16000 N**
- **Clamping area 0 until 214 mm (Universal Jaws)**
- **Reverse jaws allow a wide clamping area**
- **Dual clamping with Twin-load Jaw**

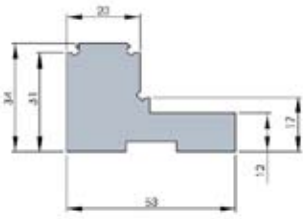


H 9.1613ZSK Self Centering Vice

Precision Self Centering Vice with H 9.GB80P reversible ground Grip jaws and H 9.GL80 Grip-Strip mounted on an Aluminum pallet. Includes H 9030.1K Centering Journal and dowel pins for single clamper use.

Jaw width	80 mm
Clamping range (Reverse jaw)	0 –190 mm
Centering accuracy	0,015 mm
Clamping force (at 80 Nm tension force)	16000 N
Total length	246 mm
Clamping slide width	80 mm
Bed length	230 mm
Weight	approx. 9 kg

Accessories Self Centering Vice



H9.GB80P Reverse Grip Jaw

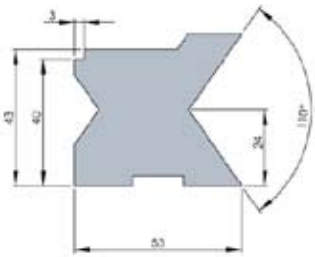
with ground clamping and rest surfaces including H9.GL80 Grip-Strip.

Jaw width	80 mm
Clamping range	0 - 190 mm

H9.GB125P Reverse Grip Jaw

same as H9.GB80P , 125 mm width.

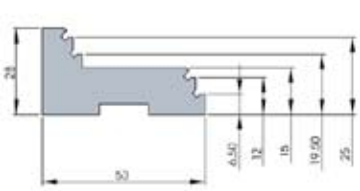
Jaw width	125 mm
Clamping range	0 - 190 mm



H9.PB80 Reverse Prism Jaw

with two 110° prisms with clamping diameter ranges 11 - 30 and 28 - 78. One 3x3 mm clamping and rest area surface.

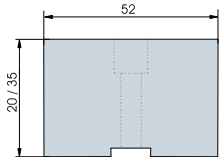
Clamping range (prism)	∅ 11-30 / ∅ 28-78 mm
Clamping range (3x3 mm face)	6,5 - 130 mm
Jaw width	80 mm



H9.UB80 Universal Grip Jaw

with four clamping and rest surfaces. Two with ground and two with serrated clamping surfaces.

Jaw width	80 mm
Clamping range	0 - 214 mm



H9.RB80-20 Raw Jaw

Aluminum Raw Jaw for producing custom jaws

Jaw height	20 mm
Jaw width	80 mm

H9.RB80-35 Raw Jaw

Aluminum Raw Jaw for producing custom jaws

Jaw height	35 mm
Jaw width	80 mm

Accessories for Self Centering Vice

H 9.TL80P-34 Twin-load Jaw

Center Twin-load Jaw for use with H9.GB80P, upper level (31 mm).
Includes H9.TGL80 Twin Grip Strip

Jaw height	34 mm
Jaw width	80 mm

H 9.TL80U-15 Twin-load Jaw

Center Twin-load Jaw for use with H9.UB80, lower level (12 mm).
Inclusive Twin-Grip-Strip H9.TGL80.

Jaw height	15 mm
Jaw width	80 mm

H 9.TL80U-28 Twin-load Jaw

some as H9.TL80U-15 but for upper level (25 mm).

Jaw height	28 mm
Jaw width	80 mm

H 9.GL80 Grip-Strip

80 mm width, serrated, for H9.GB80P Reversible Grip Jaws.

H 9.GL125 Grip-Strip

125 mm width, serrated, for H9.GB125P Reversible Grip Jaws.

H 9.TGL80 Twin-Grip-Strip

80 mm width, serrated, for H9.TL80P-34, H9.TL80U-15 and H9.TL80U-28 Twin-load Jaw.

H 9.HK-SK12 Hand Crank

Hand Crank with 12 mm hexagon bore for H9.1613ZSK Self Centering Vice.

H 9.DS20-100 Torque Wrench

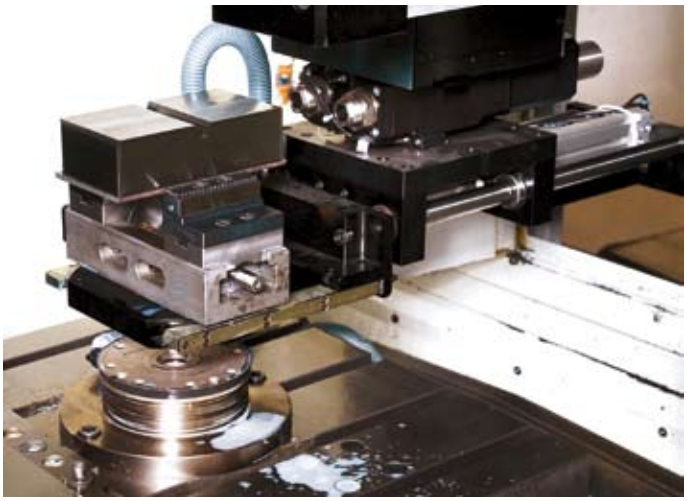
for H 9.1613ZSK Self Centering Vice, with 12 mm hexagon key .

Adjustable torque	20 - 100 Nm
Length	340 mm

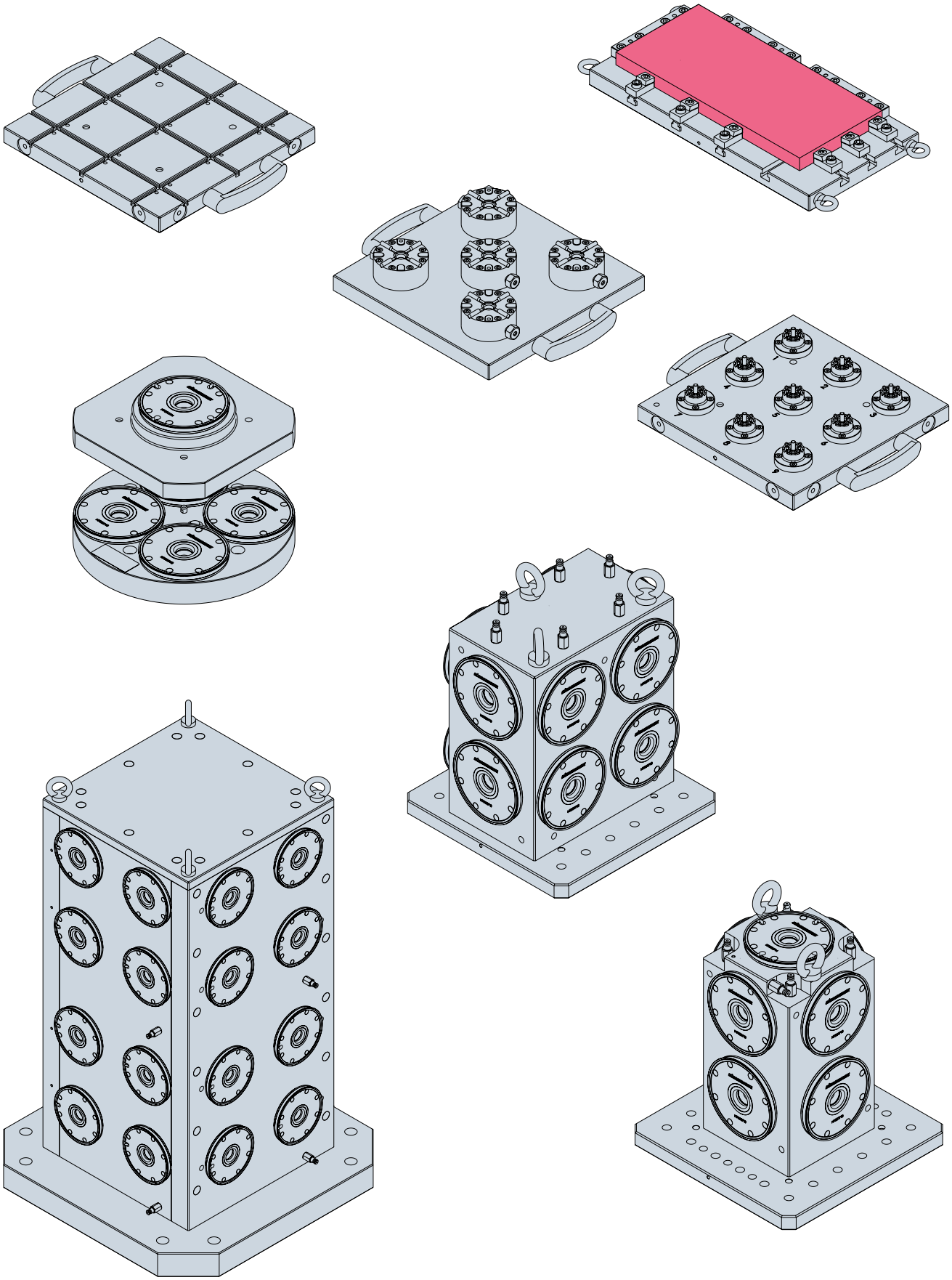
Automation

Automatic loading

System 9000K pallets can be loaded manually or automatically using a pneumatically controlled gripper transport system or a pick & place loader like the HIRSCHMANN EROBOT or six axis robots. The automated loading of machine tools can easily achieve 24/7 versatility. HIRSCHMANN accommodates indexed automation solutions needed for single and multiple machine loading, as well as NC-program management and software-solutions (cell management software).



Engineered solutions by request



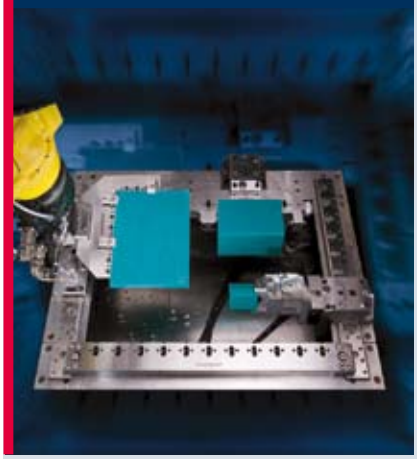
Notes

HIRSCHMANN

FIXTURING SYSTEM 9000
Modular Zero-Point Fixturing

PRODUCT OVERVIEW

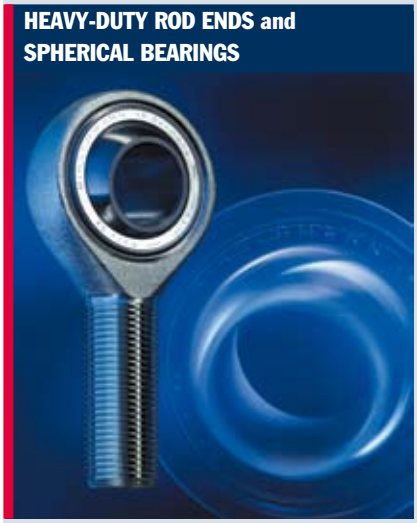
FIXTURING SYSTEM 4000
for Wire EDM



FIXTURING SYSTEM 5000
for Sinking EDM

PALLETIZING SYSTEM 8000
for Machine Tools

HEAVY-DUTY ROD ENDS and SPHERICAL BEARINGS



ROTARY INDEXING TABLES and A-AXES
for Wire and Sinking EDM

HIRSCHMANN GMBH · KIRCHENTANNENSTRASSE 9 · D-78737 FLUORN-WINZELN
FON +49 (0)7402 183-0 · FAX +49 (0)7402 18310 · www.hirschmanngmbh.com · info@hirschmanngmbh.com