

Zero-point clamping system



Application

The modular structured flexible zero-point clamping system was specifically developed for the machining and non-machining fields. This system enables a quick and accurate clamping and referencing of fixtures and workpieces on all production machines, machining centres, EDM's and inspection equipment. Whether subplate, fixture, vice or workpiece, this system allows an exchange with a defined reference point in a matter of seconds and repeat accuracy of less than 0.005 mm.

The advantages

- Modular system
- Compact flat design
- Workpiece or fixture change within seconds
- Pneumatic system
- Positive locking
- Holding forces up to 75 kN and pull-in forces up to 25 kN
- Turbo function
- Positioning via short conical locator
- Works reliably in every mounting position
- Sealing air function

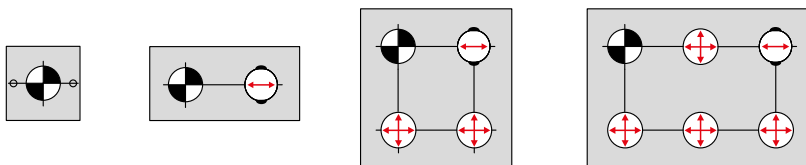
Your benefit

- Can be combined with our modular clamping system
- Better machine room utilisation
- Increased productive machine running times, significantly reduced set-up times
- Reliable system
- Very high cutting forces possible
- High operating and process safety
- Increased pull-in forces are standard
- Very high repeat accuracy
- Clamping cylinder installation in both vertical and horizontal positions
- Blow out function can be activated when changing pallets

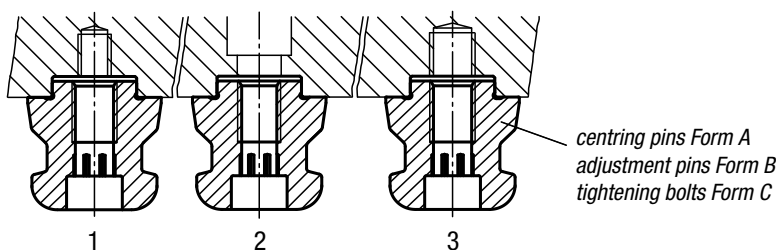
Spigot arrangement/set-up

The workpieces, fixtures or subplates are positioned and clamped using spigots. There are three different spigot types.

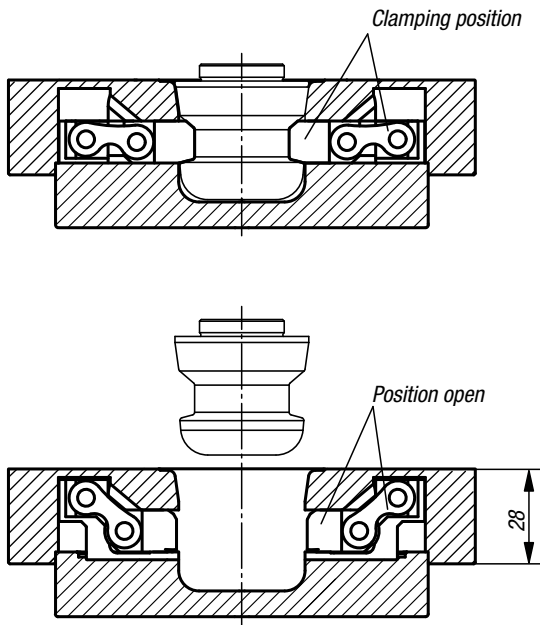
- Centring spigot fixed in x and y direction (reference point)
- ⊖ Compensating pin fixes the free axis (studs)
- ⊕ Clamping spigot Spigot with undersize (no centring function only clamping function)
- Cylindrical pin For individual clamping, positioning is done with centring spigot + 2 cylindrical pins



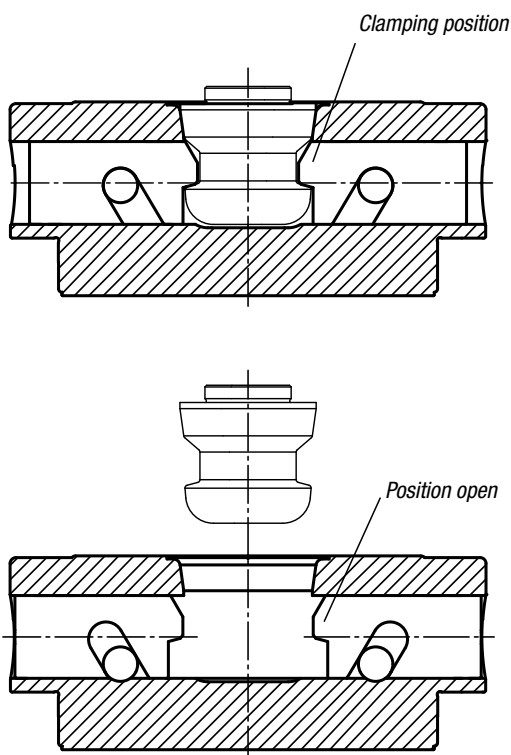
- 1 = fastening with DIN 912 screw through the tightening bolt
- 2 = fastening with DIN 912 screw through the fixture or workpiece
- 3 = fastening with grub screw DIN 913



Function



UNILOCK clamping module ERGO 138



UNILOCK clamping module ESM 138-C
UNILOCK clamping module ESM 176
UNILOCK clamping module EFM 138



UNILOCK clamping station



Material:

Clamping module high-carbon steel.
Baseplate steel 1.1730.

Version:

Clamping module contact faces hardened and ground.
Baseplate ground on both sides.

Sample order:

K1009.1000149199

Note:

Pre-assembled multi-clamping stations with integrated UNILOCK clamping modules ERGO 138. The clamping stations can be screwed directly onto machine tables or secured using claw clamps.

Standard hole patterns on the back for fastening are pre-centred.

The clamping stations can be aligned using the 14H7 reference holes.

The clamping modules are actuated using a central pneumatic connection.

The high clamping forces are generated by the integrated spring package. (the unit clamps in while not under pressure).

Clamping is released pneumatically.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:

- Clamping force (M10) 35,000 N/module
 - Clamping force (M12) 50,000 N/module
 - Clamping force (M16) 75,000 N/module
- Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

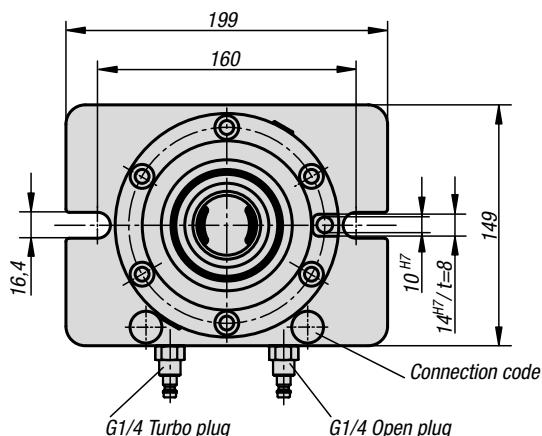
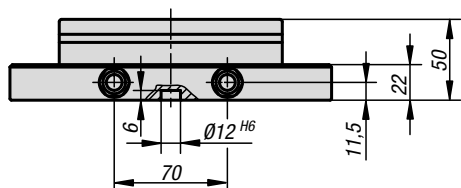
On request:

Clamping station in special dimensions.

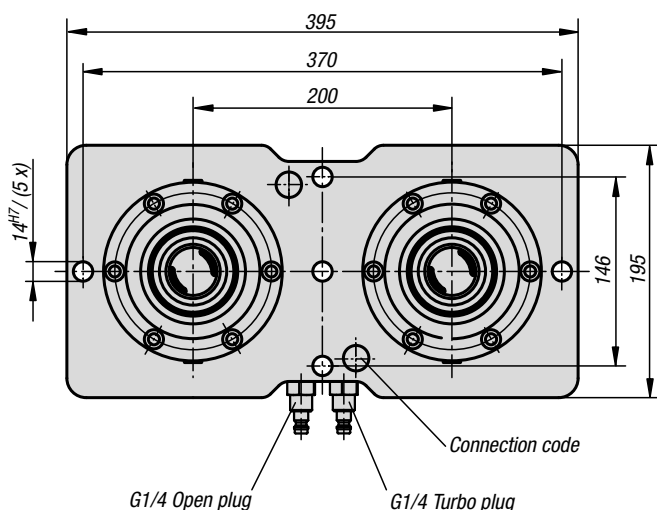
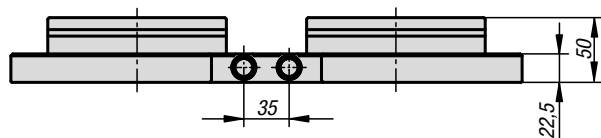
Technical data:

- Retraction force with turbo from 18 kN/module
- Opening pressure: 6 bar, lubricated air.
- Turbo pressure: 6 bar.
- Air connection: G1/4
- Repeat accuracy ≤ 0.005 mm
- Reference holes 14H7 to align the clamping plate.

1x



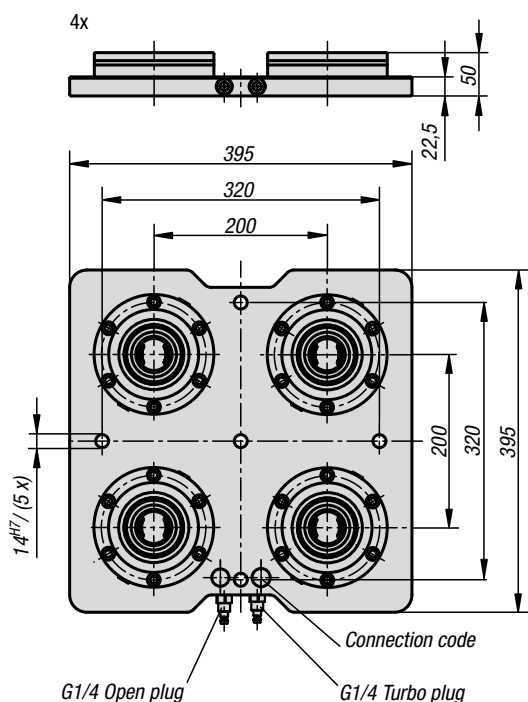
2x



KIPP UNILOCK clamping station

Order No.	Version 2	Form	Form-Type	weight kg
K1009.1000149199	1x	A	without rotation lock	7,08
K1009.10001491991	1x	B	with rotation lock	7,2
K1009.2200395195	2x	A	without rotation lock	17,62

UNILOCK clamping station



Material:

Clamping module high-carbon steel.
Baseplate steel 1.1730.

Version:

Clamping module contact faces hardened and ground.
Baseplate ground on both sides.

Sample order:

K1009.4200395395

Note:

Pre-assembled multi-clamping stations with integrated UNILOCK clamping modules ERGO 138. The clamping stations can be screwed directly onto machine tables or secured using claw clamps.

Standard hole patterns on the back for fastening are pre-centred.

The clamping stations can be aligned using the 14H7 reference holes.

The clamping modules are actuated using a central pneumatic connection.

The high clamping forces are generated by the integrated spring package. (the unit clamps in while not under pressure).

Clamping is released pneumatically.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:

- Clamping force (M10) 35,000 N/module
- Clamping force (M12) 50,000 N/module
- Clamping force (M16) 75,000 N/module

Clamping force with DIN EN ISO 4762 -12.9 cap screws

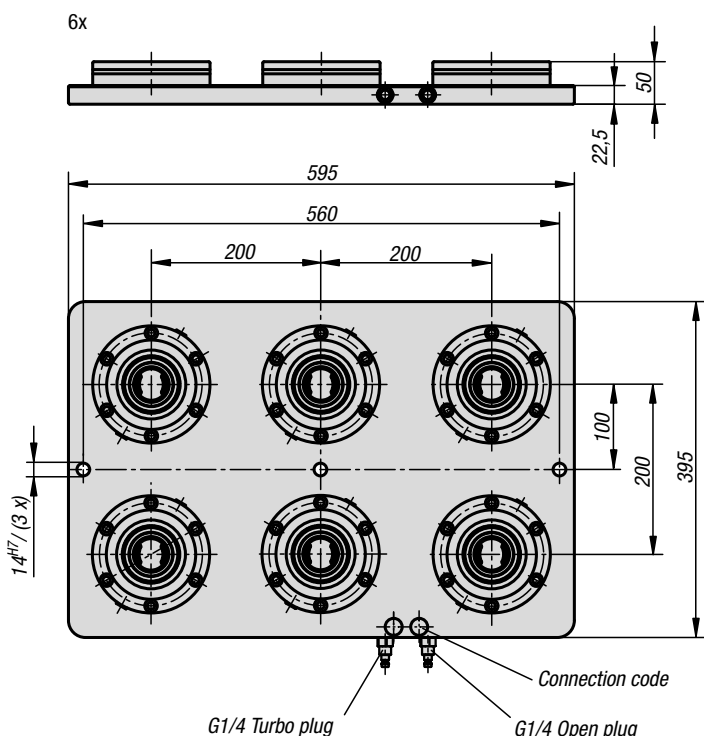
Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

On request:

Clamping station in special dimensions.

Technical data:

- Retraction force with turbo from 18 kN/module
- Opening pressure: 6 bar, lubricated air.
- Turbo pressure: 6 bar.
- Air connection: G1/4
- Repeat accuracy ≤ 0.005 mm
- Reference holes 14H7 to align the clamping plate.



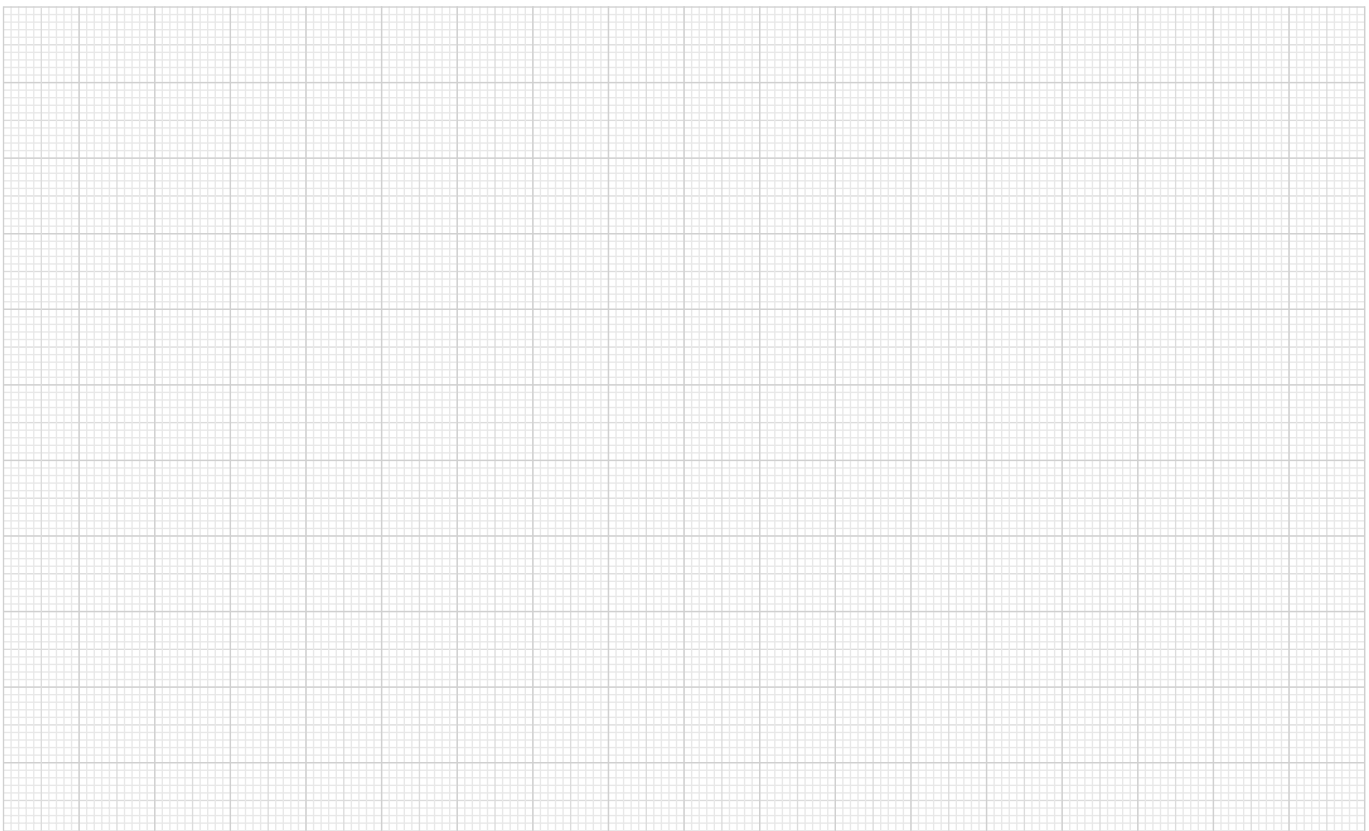
KIPP UNILOCK clamping station

Order No.	Version 2	Form	Form-Type	weight kg
K1009.4200395395	4x	A	without rotation lock	35
K1009.6200595395	6x	A	without rotation lock	52,2





Notes



UNILOCK clamping module

ERGO 138



Material:
Carbon steel.

Version:
Contact faces hardened and ground.

Sample order:
K1003.138280

Note:
The UNILOCK clamp modules can be mounted in any position, with or without projection on machine tables or as part of fixtures (plates, cubes, towers etc). The pneumatic control of the clamping modules can be carried out independently or together, thus an individual zero-point clamping system can be fabricated. The modular design allows the number of and distance between the clamp modules to be ideally adjusted to suit the clamping task. The set-up times are significantly reduced and so the running times of the machines are extended.

A very low installation height of the clamping modules is achieved by the compact design of the flat clamping slides.

The high clamping forces are generated by the integrated spring package (the unit is clamped without constant air pressure). The release process is pneumatic. Even in the event of a pressure drop or fluctuations in the compressed air supply, the full traction force is maintained.

All clamping modules have a turbo function included as standard. A short air impulse at the „Turbo“ air port increases the normal traction force, achieved by the springs, significantly. Consequently, the clamping modules can also be used for heavy-feed machining.

Use of the turbo function for maximum traction force is recommended.

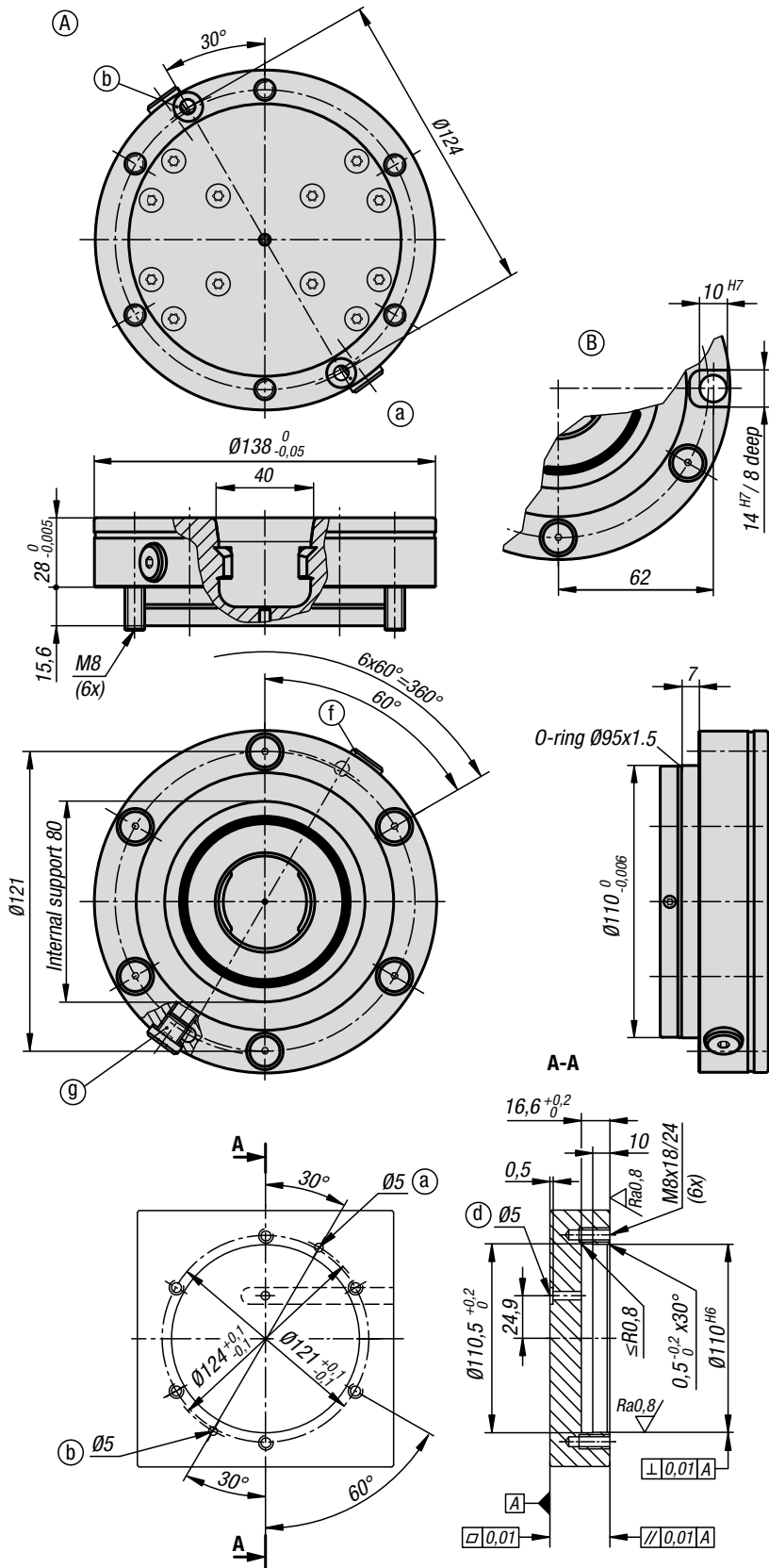
The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:

- Clamping force (M10) 35,000 N
 - Clamping force (M12) 50,000 N
 - Clamping force (M16) 75,000 N
- Clamping force with DIN EN ISO 4762 -12.9 cap screws.

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

A consistent clamping bolt size for all clamping modules and compatibility with the 5-axis module clamping system 80 guarantees diverse combinations of application possibilities.

The ERGO clamping modules are available with and without rotation lock.

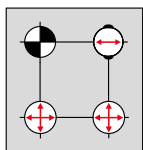


KIPP UNILOCK clamping module ERGO 138

Order No.	Form	Form-Type	Operating pressure bar	Retraction force with turbo kN	weight kg
K1003.138280	A	without rotation lock	6	18	3,56
K1003.138281	B	with rotation lock	6	18	3,52

UNILOCK clamping module

ERGO 138



- Centring pins = Form A fixes in x and y axis (reference point)
- Adjustment pins = Form B fixes the free axis (bayonet pin)
- Tightening bolts = Form C Pins with undersize (no centring function, clamping only)

- Advantages:**
- Compact flat design through flat slides.
 - Turbo-function as standard.
 - Repeat accuracy ≤ 0.005 mm.
 - Positioning via short taper.
 - High traction force.
 - Setup time optimisation.

- Supplied with:**
- 1x clamping module.
 - 1x O-ring $\varnothing 95 \times 1,5$.
 - 2x O-rings $\varnothing 8 \times 2$ for media feed.
 - 6x fastening screws.
 - 6x cover caps for fastening screws.

- Accessories:**
- Clamping pin K0967.
 - Protective bolt for clamping module K1010.
 - Protective plug for clamping module K1010.

- Attention:**
- Recommended nominal hose size:
- Up to four clamping modules, hose size 6 mm.
 - From five clamping modules, hose size 8 mm.

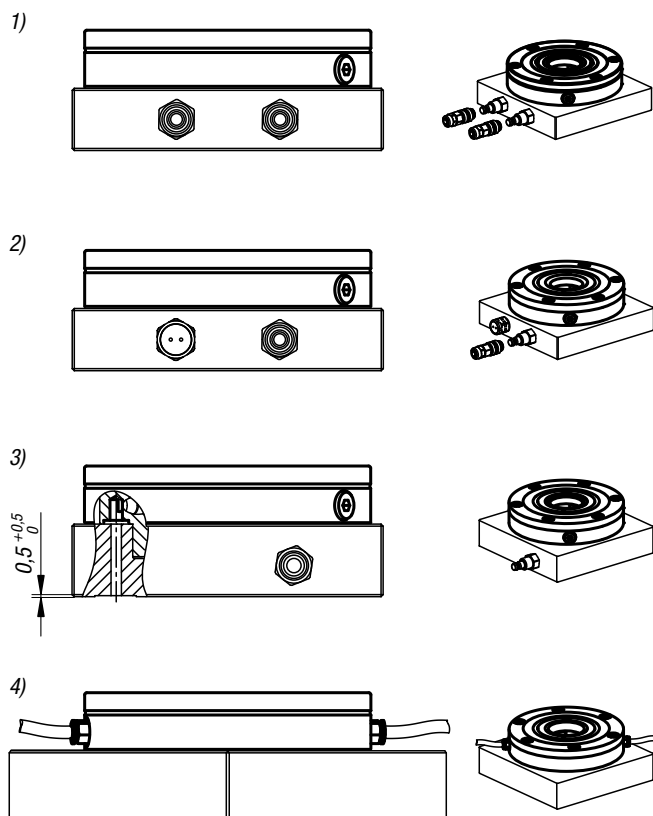
Functional principle:
The clamping modules can be connected either via the connections on the base plate or directly on the clamping module via the threaded port.

In order to guarantee the function of the clamping slides, the venting of the upper piston chamber must be carried out via the „Turbo“ air port.

- This can be implemented through one of four options:
- 1) Connection and use of the turbo function in the base plate next to the „Open“ port. This also enables the clamping module to be additionally tensioned with a short air pulse if required. (recommended)
 - 2) Simple hole in the baseplate connected to the turbo port to permit air to escape. To seal the bore against dirt, use a vent screw instead of a connection with a shut-off function.
 - 3) In the third case, the piston chamber must be vented via a bore that is connected below the baseplate via a transverse slot. This bore must join with the turbo port so that venting can take place.
 - 4) If the clamping module is controlled from the side, the one vent screw must also be inserted at this point.

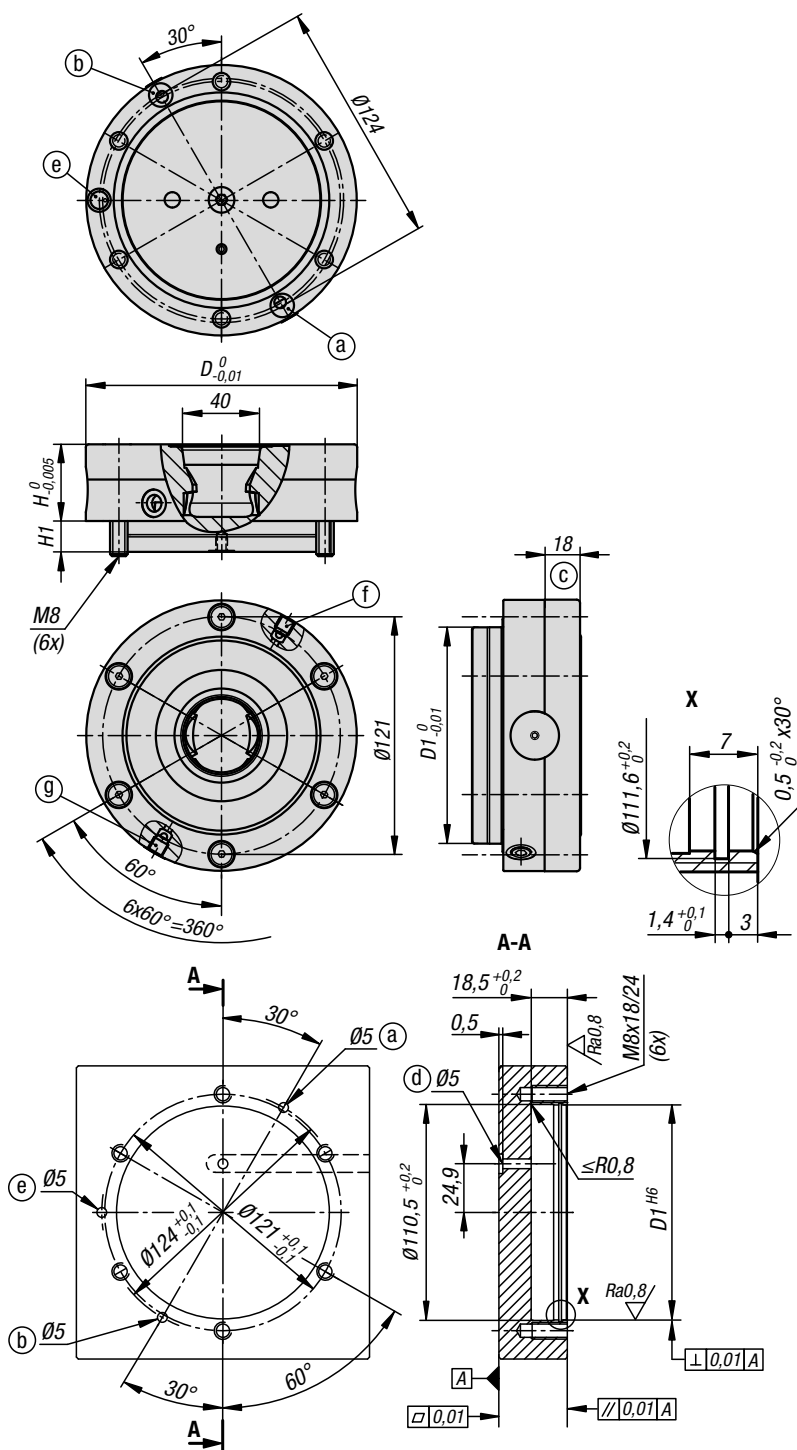
- Technical data:**
- Traction force with turbo from 18 kN.
 - System pressure: 6 bar, lubricated air.
 - Repeat accuracy ≤ 0.005 mm.
 - Temperature range 5° to 60° C.
 - Optional port for blow-out air.

- Drawing reference:**
- a) Underside hose-less port (open)
O-ring $\varnothing 8 \times 2$
 - b) Underside hose-less port (turbo)
O-ring $\varnothing 8 \times 2$
 - c) Centring rim
 - d) Vent
 - f) Lateral connection G1/8 (actuator open)
 - g) Lateral connection G1/8 (turbo)



UNILOCK clamping module

ESM 138-C



Material:
Steel.

Version:
Contact faces case-hardened and ground.

Sample order:
K1385.138390

Note:
The UNILOCK clamp modules can be mounted in any position, with or without projection on machine tables or as part of fixtures (plates, cubes, towers etc). The pneumatic control of the clamping modules can be carried out independently or together, thus an individual zero-point clamping system can be fabricated. The modular design allows the number of and distance between the clamp modules to be ideally adjusted to suit the clamping task. The set-up times are significantly reduced and so the running times of the machines are extended.

The high clamping forces are generated by the integrated spring package (the unit is clamped without constant air pressure). The release process is pneumatic. Even in the event of a pressure drop or fluctuations in the compressed air supply, the full traction force is maintained.

All clamping modules have a turbo function included as standard. A short air impulse at the „Turbo“ air port increases the normal traction force, achieved by the springs, significantly. Consequently, the clamping modules can also be used for heavy-feed machining.

Use of the turbo function for maximum traction force is recommended.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:

- Clamping force (M10) 35,000 N
 - Clamping force (M12) 50,000 N
 - Clamping force (M16) 75,000 N
- Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

A consistent clamping bolt size for all clamping modules and compatibility with the 5-axis module clamping system 80 guarantees diverse combinations of application possibilities.

Advantages:

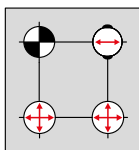
- Automation-capable through various query options.
- Turbo-function as standard.
- Repeat accuracy ≤ 0.005 mm.
- Positioning via short taper.
- High traction force.
- Setup time optimisation.




KIPP UNILOCK clamping module ESM 138-C

Order No.	Form	Form-Type	D	D1	H	H1	Operating pressure bar	Retraction force with turbo kN
K1385.138390	A	without rotation lock	138	110	39	16,7	6	25

UNILOCK clamping module

ESM 138-C



-  Centring pins = Form A fixes in x and y axis (reference point)
-  Adjustment pins =Form B fixes the free axis (bayonet pin)
-  Tightening bolts = Form C Pins with undersize
(no centring function, clamping only)

Supplied with:

- 1x clamping module.
- 1x O-ring Ø110x1.
- 3x O-rings Ø9x1.5 for media feed.
- 6x fastening screws.
- 6x cover caps for fastening screws.

Accessories:

- Clamping pin K0967.
- Protective bolt for clamping module K1010.
- Protective plug for clamping module K1010.

Attention:

- Recommended nominal hose size:
 - Up to four clamping modules, hose size 6 mm.
 - From five clamping modules, hose size 8 mm.

Functional principle:

The clamping modules can be connected either via the connections on the base plate or directly on the clamping module via the threaded port.

In order to guarantee the function of the clamping slides, the venting of the upper piston chamber must be carried out via the „Turbo“ air port.

This can be implemented through one of four options:

- 1) Connection and use of the turbo function in the base plate next to the „Open“ port. This also enables the clamping module to be additionally tensioned with a short air pulse if required. (recommended)
- 2) Simple hole in the baseplate connected to the turbo port to permit air to escape. To seal the bore against dirt, use a vent screw instead of a connection with a shut-off function.
- 3) In the third case, the piston chamber must be vented via a bore that is connected below the baseplate via a transverse slot. This bore must join with the turbo port so that venting can take place.
- 4) If the clamping module is controlled from the side, the one vent screw must also be inserted at this point.

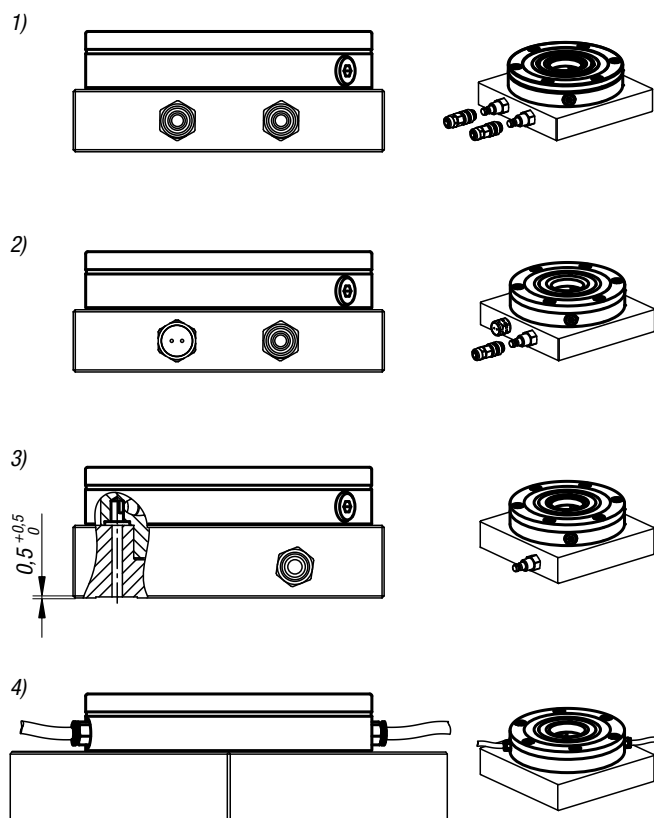


Technical data:

- Traction force with turbo from 25 kN.
- System pressure: 6 bar, lubricated air.
- Repeat accuracy ≤ 0.005 mm.
- Temperature range 5° to 60° C.
- Optional port for blow-out air.
- The third air port can be used as a query function to report if clamping slides are open or closed.

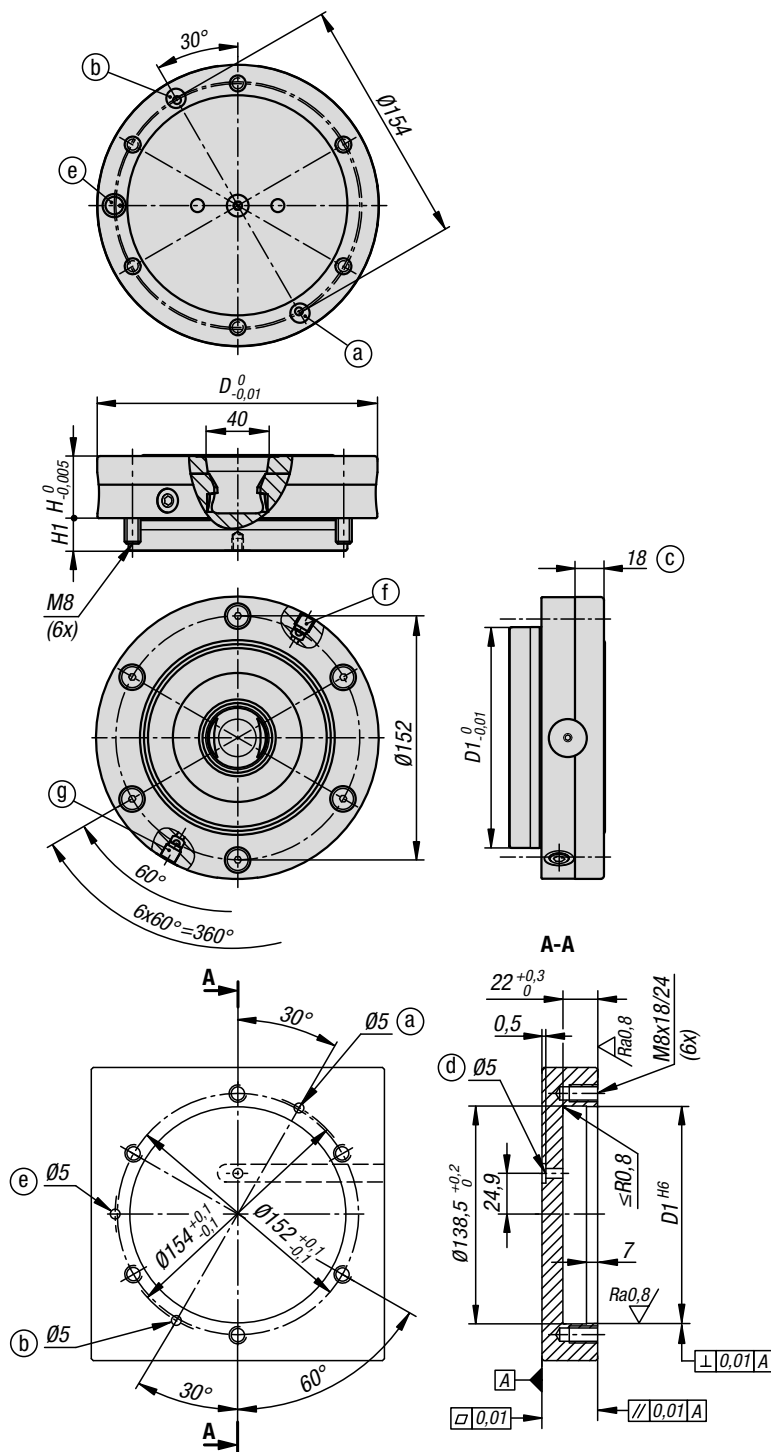
Drawing reference:

- a) Underside hose-less port (open)
O-ring Ø9x1.5
- b) Underside hose-less port (turbo)
O-ring Ø9x1.5
- c) Centring rim
- d) Vent
- e) Underside hose-less port
(dynamic pressure detection / clamp slider position)
O-ring Ø9x1.5
- f) Lateral connection G1/8 (actuator open)
- g) Lateral connection G1/8 (turbo)



UNILOCK clamping module

ESM 176



Material:
Steel.

Version:
Contact faces case-hardened and ground.

Sample order:
K1389.176390

Note:
The UNILOCK clamp modules can be mounted in any position, with or without projection on machine tables or as part of fixtures (plates, cubes, towers etc). The pneumatic control of the clamping modules can be carried out independently or together, thus an individual zero-point clamping system can be fabricated. The modular design allows the number of and distance between the clamp modules to be ideally adjusted to suit the clamping task. The set-up times are significantly reduced and so the running times of the machines are extended.

The high clamping forces are generated by the integrated spring package (the unit is clamped without constant air pressure). The release process is pneumatic. Even in the event of a pressure drop or fluctuations in the compressed air supply, the full traction force is maintained.

All clamping modules have a turbo function included as standard. A short air impulse at the „Turbo“ air port increases the normal traction force, achieved by the springs, significantly. Consequently, the clamping modules can also be used for heavy-feed machining.

Use of the turbo function for maximum traction force is recommended.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:
 - Clamping force (M10) 35,000 N
 - Clamping force (M12) 50,000 N
 - Clamping force (M16) 75,000 N
 Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

A consistent clamping bolt size for all clamping modules and compatibility with the 5-axis module clamping system 80 guarantees diverse combinations of application possibilities.

- Advantages:**
- Automation-capable through various query options.
 - Turbo-function as standard.
 - Repeat accuracy ≤ 0.005 mm.
 - Positioning via short taper.
 - High traction force.
 - Setup time optimisation.

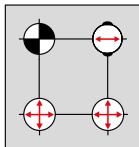
On request:
Installation clamp with rotation lock.




KIPP UNILOCK clamping module ESM 176

Order No.	Form	Form-Type	D	D1	H	H1	Operating pressure bar	Retraction force with turbo kN
K1389.176390	A	without rotation lock	176	138	39	20,8	6	40

UNILOCK clamping module

ESM 176



-  Centring pins = Form A fixes in x and y axis (reference point)
-  Adjustment pins = Form B fixes the free axis (bayonet pin)
-  Tightening bolts = Form C Pins with undersize
(no centring function, clamping only)

Supplied with:

- 1x clamping module.
- 3x O-rings Ø9x1.5 for media feed.
- 6x fastening screws.
- 6x cover caps for fastening screws.

Accessories:

- Clamping pin K0967.
- Protective bolt for clamping module K1010.
- Protective plug for clamping module K1010.

Attention:

- Recommended nominal hose size:
 - Up to four clamping modules, hose size 6 mm.
 - From five clamping modules, hose size 8 mm.

Functional principle:

The clamping modules can be connected either via the connections on the base plate or directly on the clamping module via the threaded port.

In order to guarantee the function of the clamping slides, the venting of the upper piston chamber must be carried out via the „Turbo“ air port.

This can be implemented through one of four options:

- 1) Connection and use of the turbo function in the base plate next to the „Open“ port. This also enables the clamping module to be additionally tensioned with a short air pulse if required. (recommended)
- 2) Simple hole in the baseplate connected to the turbo port to permit air to escape. To seal the bore against dirt, use a vent screw instead of a connection with a shut-off function.
- 3) In the third case, the piston chamber must be vented via a bore that is connected below the baseplate via a transverse slot. This bore must join with the turbo port so that venting can take place.
- 4) If the clamping module is controlled from the side, the one vent screw must also be inserted at this point.

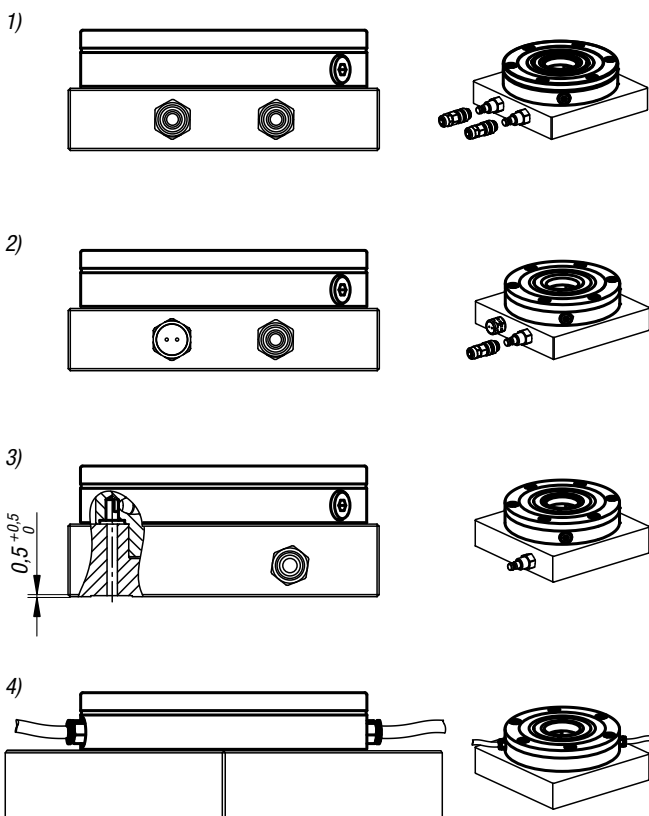


Technical data:

- Traction force with turbo from 25 kN.
- System pressure: 6 bar, lubricated air.
- Repeat accuracy ≤0.005 mm.
- Temperature range 5° to 60° C.
- Optional port for blow-out air.
- The third air port can be used as a query function to report if clamping slides are open or closed.

Drawing reference:

- a) Underside hose-less port (open)
O-ring Ø9x1.5
- b) Underside hose-less port (turbo)
O-ring Ø9x1.5
- c) Centring rim
- d) Vent
- e) Underside hose-less port
(dynamic pressure detection / clamp slider position)
O-ring Ø9x1.5
- f) Lateral connection G1/8 (actuator open)
- g) Lateral connection G1/8 (turbo)



UNILOCK clamping module

EFM 138



Material:

Steel.

Version:

Contact faces hardened and ground.

Sample order:

K1866.138110

Note:

The UNILOCK clamp modules EFM 138 can be installed in machine tables, in fixtures (plates, cubes, towers etc) with or without overhang in any position. The UNILOCK clamping module EFM 138 is particularly suitable for installation in workholding towers by machining a deep recess for the module. With a maximum protrusion of 11 mm above the installation surface, only minor interference contours occur, thus permitting optimum horizontal machining on the workpiece.

The pneumatic control of the clamping modules can be carried out independently or together, thus an individual zero-point clamping system can be fabricated. The modular design allows the number of and distance between the clamp modules to be ideally adjusted to suit the clamping task. The set-up times are significantly reduced and so the running times of the machines are extended.

The high clamping forces are generated by the integrated spring package (the unit is clamped without constant air pressure). The release process is pneumatic. Even in the event of a pressure drop or fluctuations in the compressed air supply, the full traction force is maintained.

All clamping modules have a turbo function included as standard. A short air impulse at the „Turbo“ air port additionally increases the normal traction force achieved by the springs significantly. Consequently, the clamping modules can also be used for heavy-feed machining.

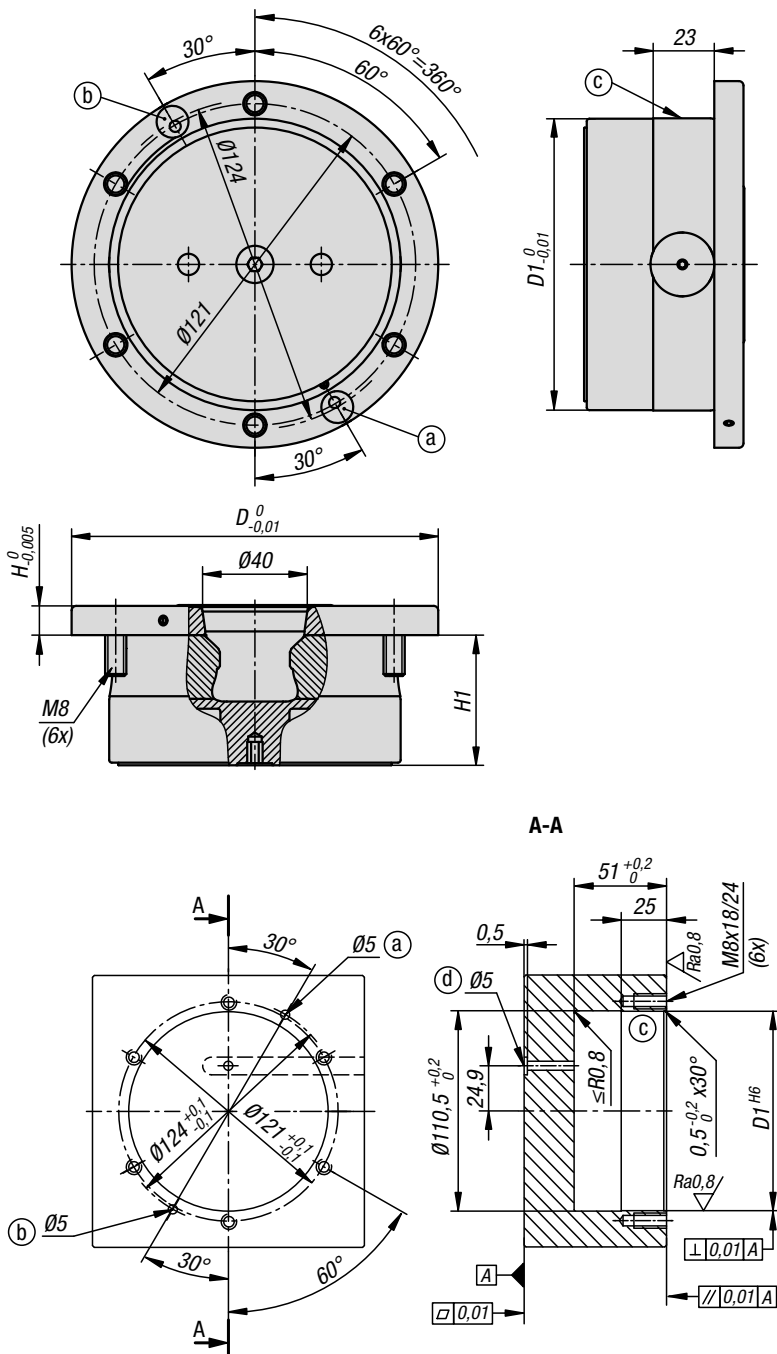
Use of the turbo function for maximum traction force is recommended.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:

- Clamping force (M10) 35,000 N
 - Clamping force (M12) 50,000 N
 - Clamping force (M16) 75,000 N
- Clamping force with DIN EN ISO 4762 -12.9 cap screws.

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

A consistent clamping bolt size for all clamping modules and compatibility with the 5-axis module clamping system 80 guarantees diverse applications.

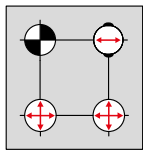





KIPP UNILOCK clamping module EFM 138

Order No.	D	D1	H	H1	Operating pressure bar	Retraction force with turbo kN
K1866.138110	138	110	11	49	6	20

UNILOCK clamping module

EFM 138



-  Centring pins = Form A fixes in x and y axis (reference point)
-  Adjustment pins = Form B fixes the free axis (bayonet pin)
-  Tightening bolts = Form C Pins with undersize (no centring function, clamping only)

Advantages:

- Optimal for mounting on workholding towers due to the low mounting height of 11 mm.
- Turbo function as standard.
- Repeat accuracy ≤ 0.005 mm.
- Positioning via short taper.
- High traction force.
- Setup time optimisation.

Supplied with:

- 1x clamping module.
- 6x fastening screws.
- 6x screw protection caps.
- 2x air connection O-rings $\varnothing 9 \times 1,5$.

Accessories:

- Clamping pin K0967.
- Protective bolt for clamping module K1010.
- Protective plug for clamping module K1010.

Attention:

- Recommended nominal hose size:
 - Up to four clamping modules, hose size 6 mm.
 - From five clamping modules, hose size 8 mm.

Functional principle:

The clamping modules are controlled via the connections on the base plate.

In order to guarantee the function of the clamping slides, the venting of the upper piston chamber must be carried out via the „Turbo“ air port.



This can be implemented by one of the following three options:

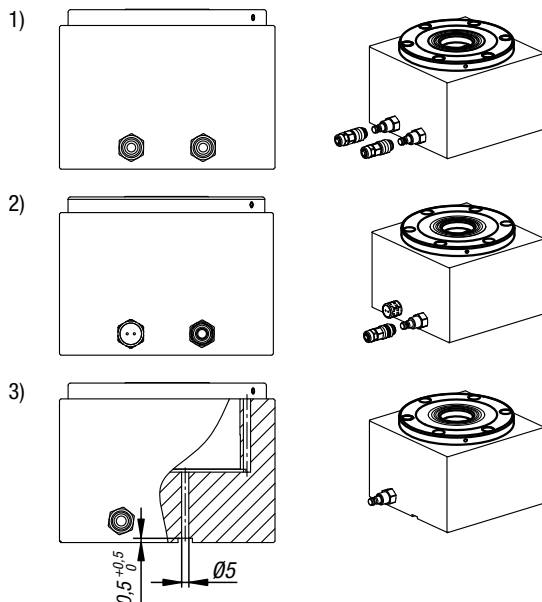
- 1) Connection and use of the turbo function in the base plate, or in the workholding tower next to the „Open“ port. This also enables the clamping module to be additionally tensioned with a short air pulse if required. (recommended)
- 2) A single hole for the air to escape in the baseplate/workholding tower which is connected to the turbo port. Do not use a connection with a shut-off function to seal the hole against dirt, instead a venting screw should be used.
- 3) In the third case, the piston chamber can be vented via a bore that is connected below the baseplate via a transverse slot. This bore must join with the turbo port so that venting can take place.

Technical data:

- Traction force with turbo 20 kN.
- System pressure: 6 bar, lubricated air.
- Repeat accuracy ≤ 0.005 mm.
- Temperature range 5° to 60° C.
- Optional port for blow-out air.

Drawing reference:

- a) Underside hose-less port (open)
O-ring $\varnothing 9 \times 1,5$
- b) Underside hose-less port (turbo)
O-ring $\varnothing 9 \times 1,5$
- c) Centring rim
- d) Vent



UNILOCK manual clamping module



Material:

Carbon steel.

Version:

Contact faces hardened and ground.

Sample order:

K1123.1605050

Note:

UNILOCK manual clamping modules can be adapted directly to machine tables with grid holes or T-slots, and to grid hole subplates with 50 mm grid spacing system size M12/M16.

The UNILOCK manual clamping module H50 is particularly suitable for machines with reduced Z travel. The low installation height of the manual clamping module facilitates full utilisation of the Z travel. The UNILOCK manual clamping module H50 can be mounted in any position.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:

- Clamping force (M10) 35,000 N
 - Clamping force (M12) 50,000 N
 - Clamping force (M16) 75,000 N
- Clamping force with DIN EN ISO 4762 -12.9 cap screws.

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

The UNILOCK manual clamping module can be fastened using DIN EN ISO 4762 -10.9 M12 or M16 cap screws.

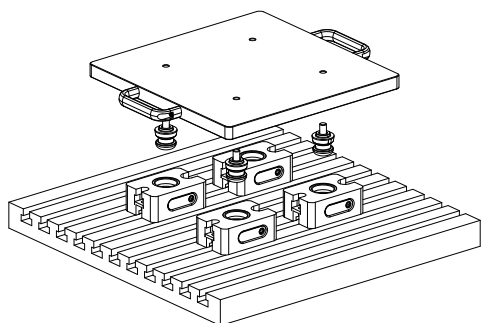
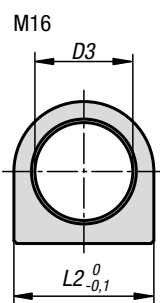
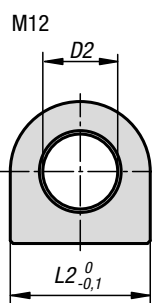
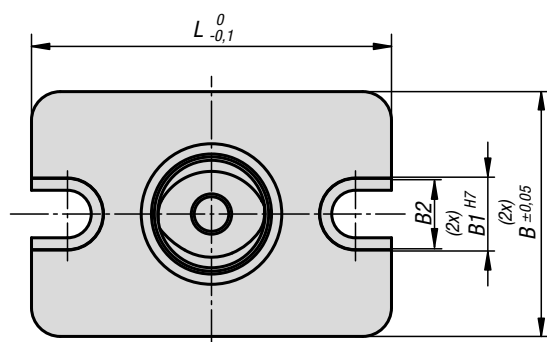
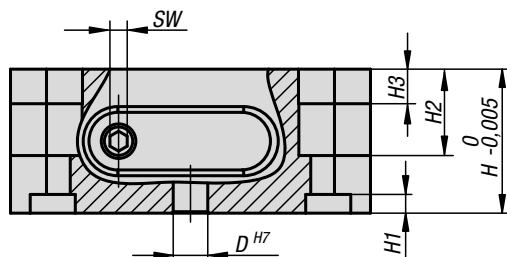
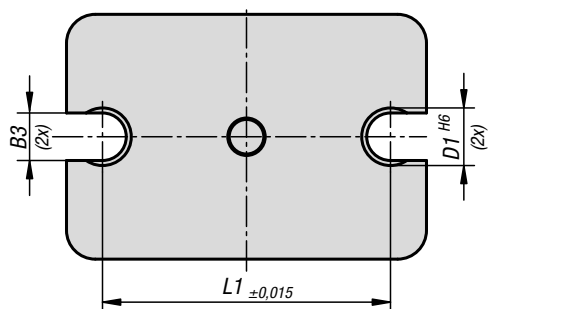
The positioning of the UNILOCK manual clamping modules can be carried out using the two alignment holes D1 or the central alignment hole D. In addition, there are two positioning holes B1 in the UNILOCK manual clamping modules for aligning interchangeable fixtures on the support surface.

Supplied with:

1 manual clamping module incl. fastening accessories.

Technical data:

Max. operating torque: 15 Nm.
 Max. retraction force: 15 Nm.
 Repeat accuracy ≤ 0.005 mm



KIPP UNILOCK manual clamping module

Order No.	B	B1	B2	B3	D	D1	D2	D3	H	H1	H2	H3	L	L1	L2	SW	weight kg
K1123.1605050	85	25	24,75	16,5	12	20	13	17	50	6,5	30	12	125	100	24,3	6	3,52

UNILOCK interchangeable subplates

for zero-point clamping system

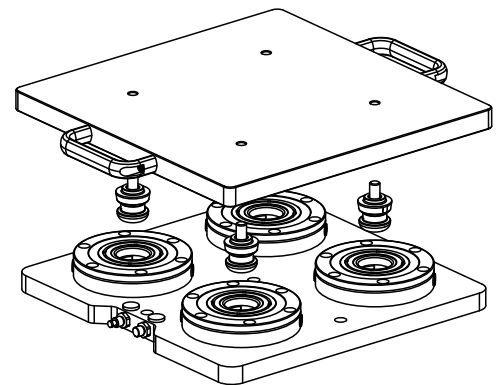
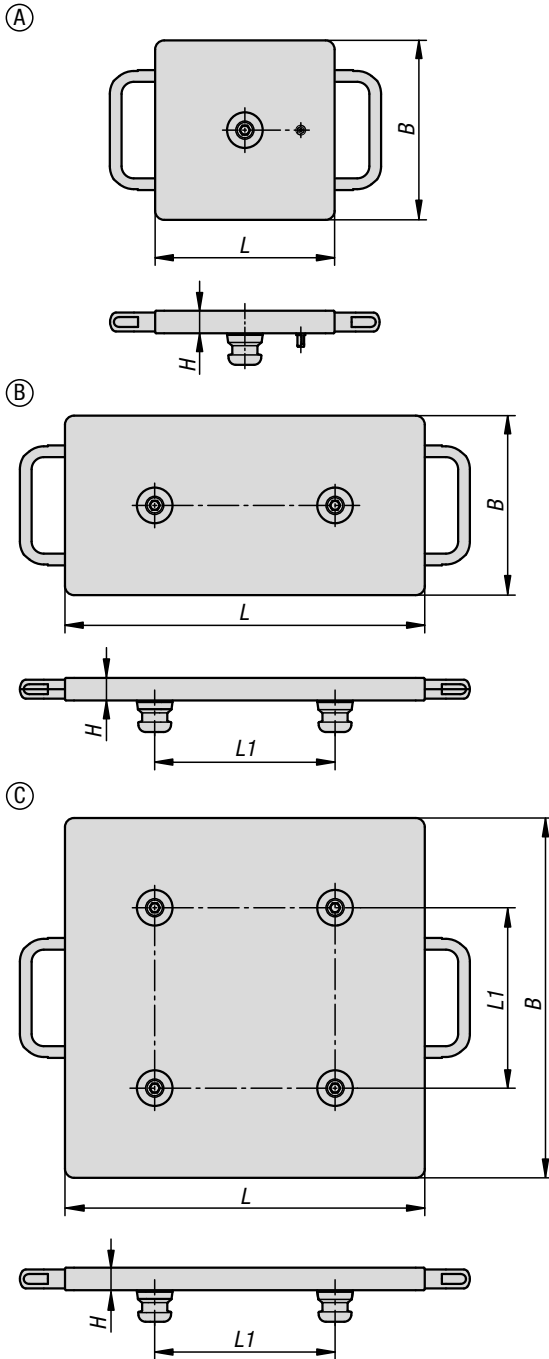


Material:
High-strength aluminium.

Sample order:
K1218.1000200200

Note:
Interchangeable subplates are particularly suitable for quickly exchanging fixtures on zero point clamping plates. Ground on both sides, standard clamping pin gauge of 200 mm. Complete with clamping pins and handles.

On request:
Further gauges and special sizes.



KIPP UNILOCK interchangeable subplates for zero-point clamping system

Order No.	Form	B	H	L	L1	weight ca. kg
K1218.1000200200	A	199	25	199	-	2,95
K1218.2200200200	B	199	25	399	200	6,02
K1218.4200400400	C	399	25	399	200	11,88

UNILOCK clamping pins

size 80 mm



Material:
Steel.

Version:
Hardened and black oxidised.
Contact faces ground.

Sample order:
K0967.140160512

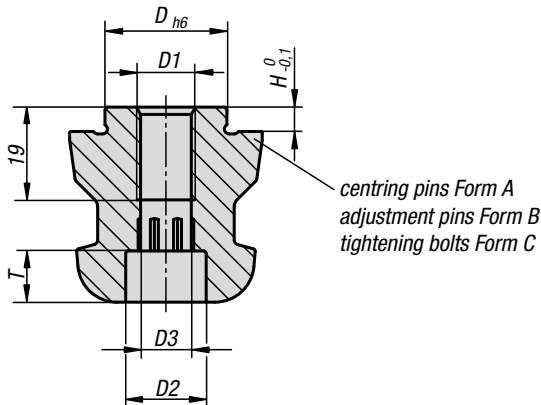
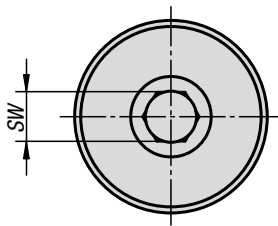
Note:
The UNILOCK clamping pin is suitable for clamping and positioning workpieces and fixtures. Clamping pins are screwed onto the exchange element and adapted to the various basic modules.

The following retaining forces are possible when the UNILOCK clamping pins are used together with M10, M12 or M16 fastening screws:

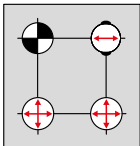
- Retaining force (M10) 35,000N
- Retaining force (M12) 50,000N
- Retaining force (M16) 75,000N

Clamping force with DIN EN ISO 4762 -12.9 cap screws.

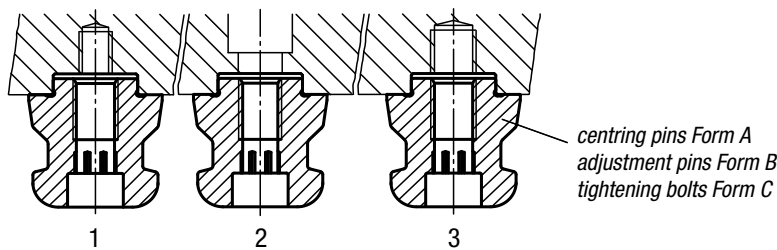
Other clamping pins in the same system size are available under K1471, K0968 and K0967 with threaded pin.



- Centring pins = Form A fixes in x and y axis (reference point)
- Adjustment pins = Form B fixes the free axis (bayonet pin)
- Tightening bolts = Form C Pins with undersize (no centring function, clamping only)



- 1 = fastening with DIN 912 screw through the tightening bolt
- 2 = fastening with DIN 912 screw through the fixture or workpiece
- 3 = fastening with grub screw DIN 913



KIPP UNILOCK clamping pins

Order No. Form A	Order No. Form B	Order No. Form C	D	D1	D2	D3	H	T	SW
K0967.140160512	K0967.240160512	K0967.340160512	16	M12	16,5	10,3	5	10,5	10
K0967.140180512	K0967.240180512	K0967.340180512	18	M12	16,5	10,3	5	10,5	10
K0967.140220516	K0967.240220516	K0967.340220516	22	M16	18,5	14,2	5	12,5	17
K0967.140250512	K0967.240250512	K0967.340250512	25	M12	16,5	10,3	5	10,5	10
K0967.140250516	K0967.240250516	K0967.340250516	25	M16	18,5	14,2	5	12,5	17

UNILOCK clamping pins

with through hole, system size 80 mm



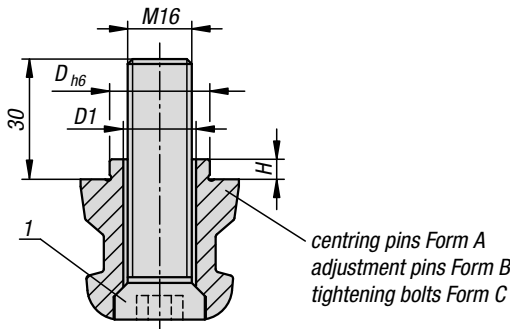
Material:
Steel.

Version:
Hardened and black oxidised.
Contact faces ground.
Swivel fastening screw M16x65, tempered and black oxidised.

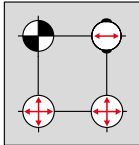
Sample order:
K1471.140250516

Note:
The UNILOCK clamping pin is suitable for clamping and positioning workpieces and fixtures. Clamping pins are screwed onto the exchange element and adapted to the various basic modules.

Drawing reference:
1) Swivel fastening screw M16x65.
Grade 10.9.



- Centring pins = Form A fixes in x and y axis (reference point)
- Adjustment pins = Form B fixes the free axis (bayonet pin)
- Tightening bolts = Form C Pins with undersize (no centring function, clamping only)



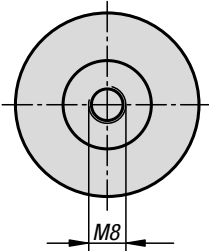
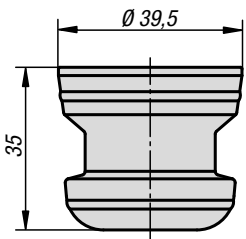
KIPP UNILOCK clamping pins with through hole

Order No.	Form	D	D1	H	Tightening torque max. Nm
K1471.140250516	A	25	16,5	5	120
K1471.240250516	B	25	16,5	5	120
K1471.340250516	C	25	16,5	5	120

K1010

UNILOCK protective bolt

for clamping module



Material:
Aluminium.

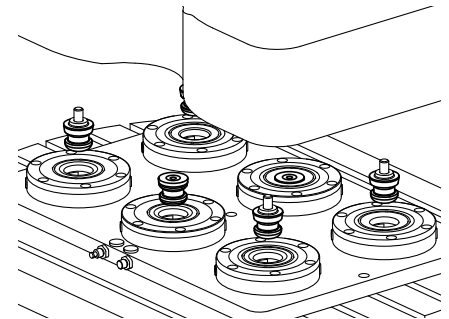
Version:
anodised.

Sample order:
K1010.040

Note:
Protection bolt to cover the hole.

KIPP UNILOCK protective bolt for clamping module

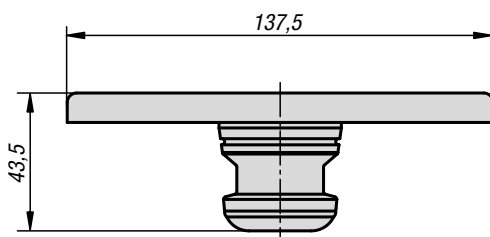
Order No.	Dimensions
K1010.040	see drawing



K1010

UNILOCK protective plug

for clamping module



Material:
Aluminium.

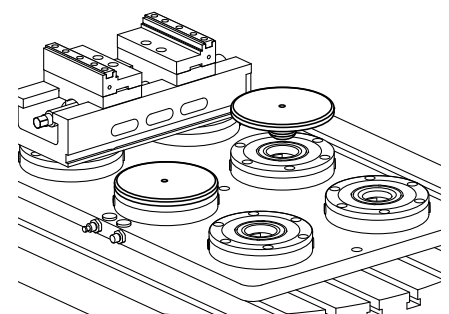
Version:
anodised.

Sample order:
K1010.138

Note:
Protective plug for clamping module D = 138.

KIPP UNILOCK protective plug for clamping module

Order No.	Dimensions
K1010.138	see drawing



UNILOCK clamping bracket

for UNILOCK clamping station



Material:

Carbon steel.

Version:

Body black oxidised.

Sample order:

K1869.482212

Note:

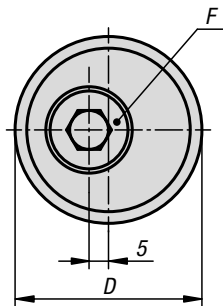
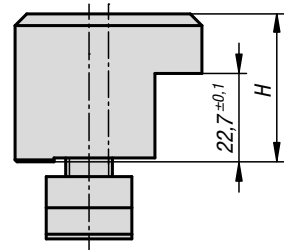
The UNILOCK clamping brackets are used for rapid fastening of the clamping stations on all conventional machine tables. The clamping brackets can be attached to the sides of the clamping stations or to the four rounded corners.

Advantages:

Rapid fastening of the UNILOCK clamping stations via adapted clamping brackets.
 No fastening holes drilled through the clamping stations required.
 Low, flat design eliminates protruding edges.
 No swarf deposits due to the enclosed form of the clamping bracket.
 The supplied screw head caps prevent the accumulation of swarf and coolants.

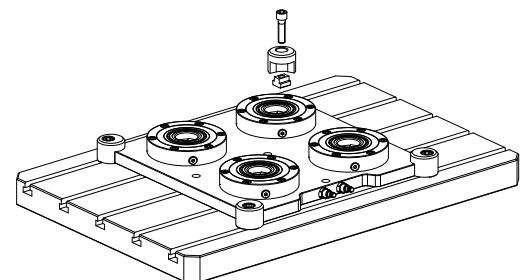
Supplied with:

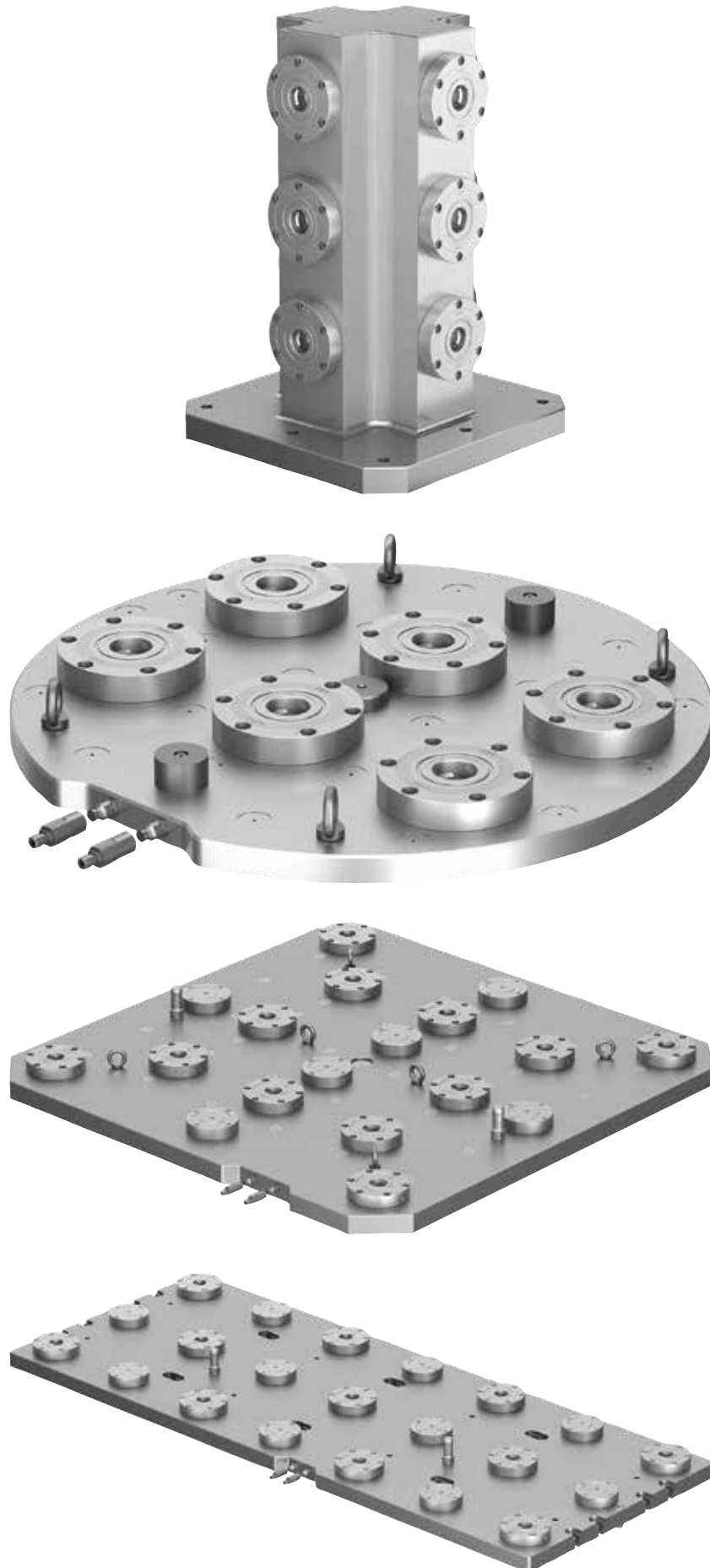
Clamping bracket
 Cap for cap screw heads
 Cap screw
 T-slot nut (M12 = slot width 14 mm, M16 = slot width 18 mm)



KIPP UNILOCK clamping bracket for UNILOCK clamping station

Order No.	D	H	F hole for ISO 4762 cap screw
K1869.482212	48	38	M12
K1869.482216	48	38	M16







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

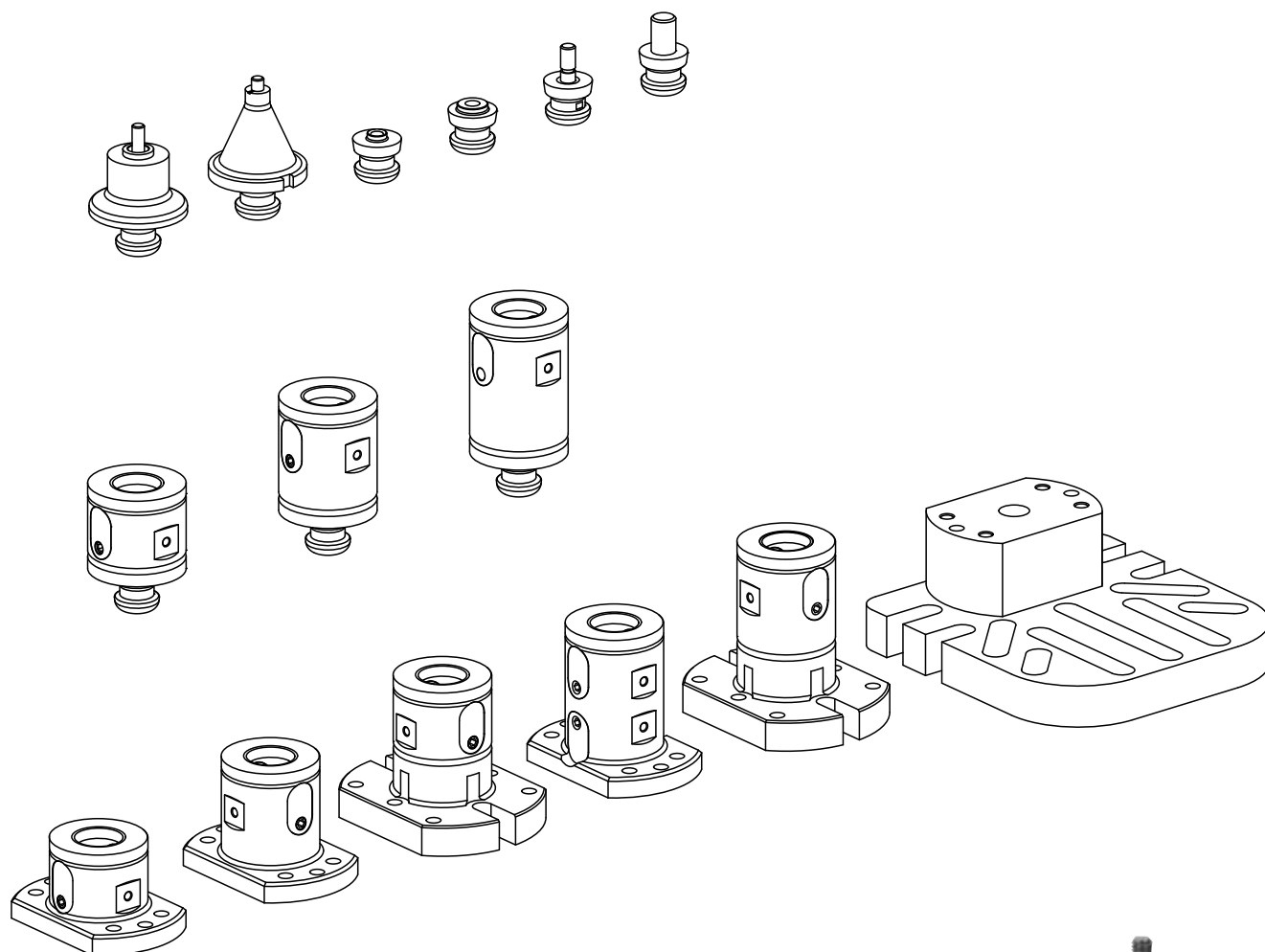


ADVANTAGES:

- 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



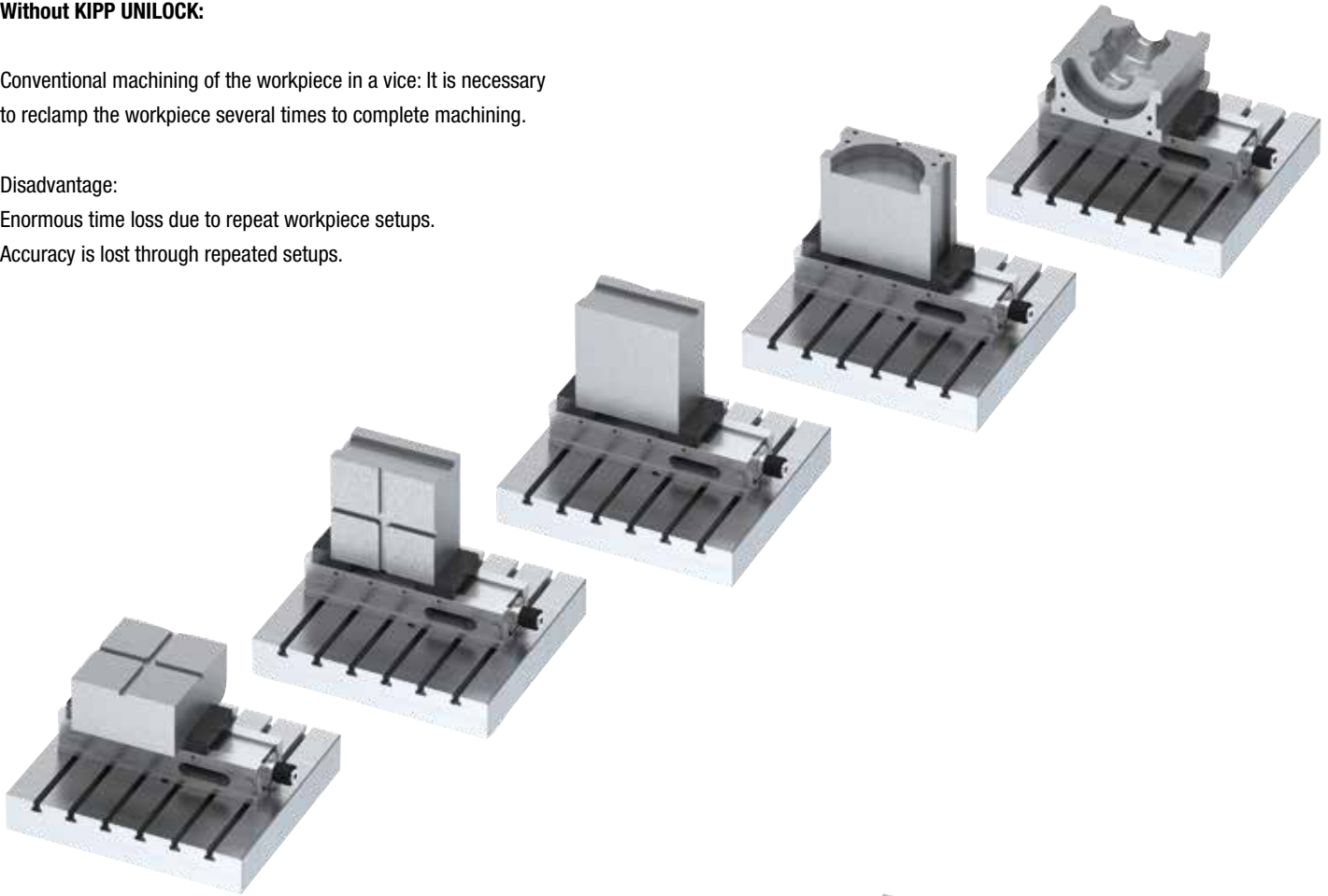
Without KIPP UNILOCK:

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.

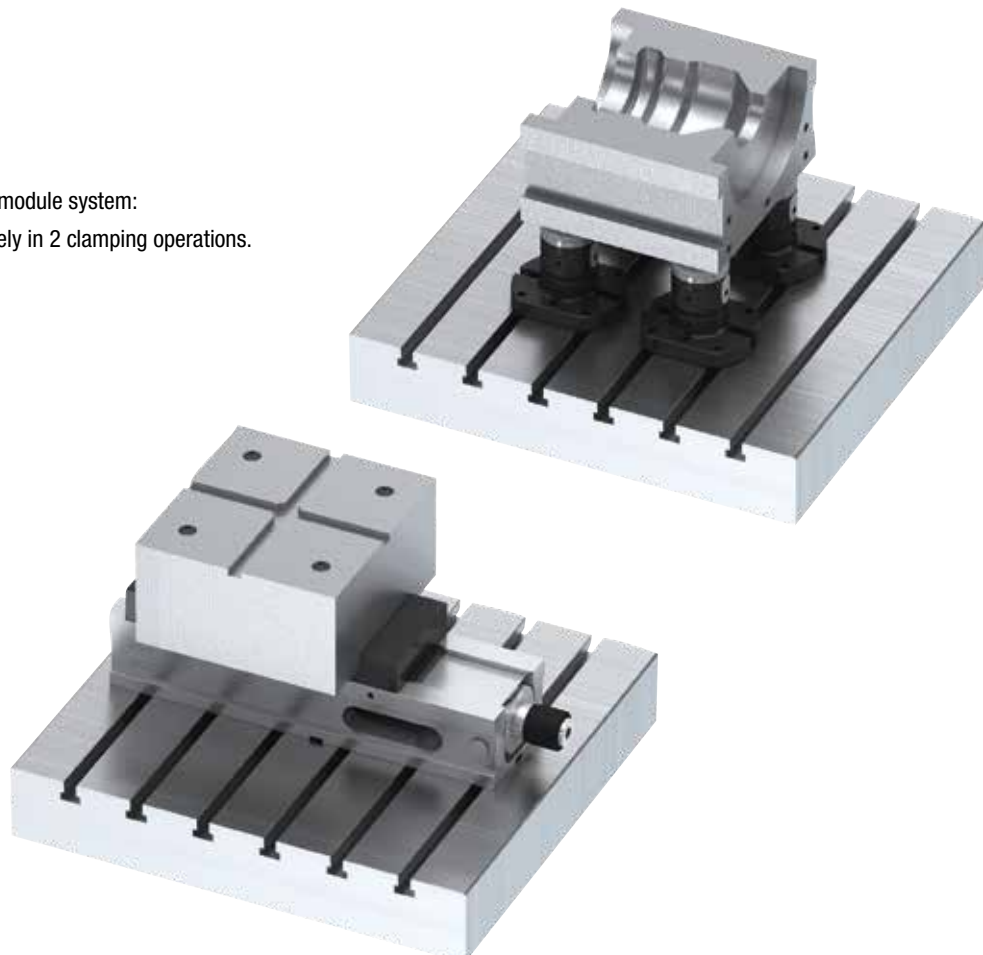
Accuracy is lost through repeated setups.



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

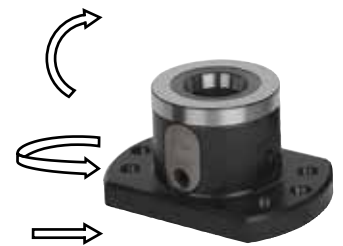


Tilt/torque single module

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

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

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



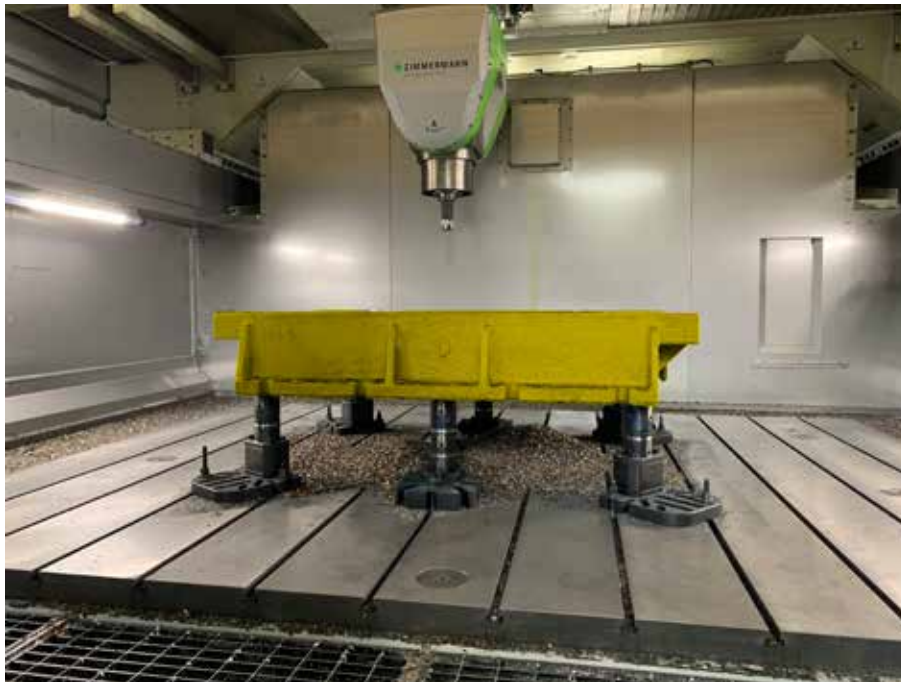
* The correct function of the clamping modules, in particular the repeat accuracy, is guaranteed up to a lateral force of 1,500 N. The failsafe and personal safety of the clamping modules is assured up to a critical lateral force of 14,000 N.

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



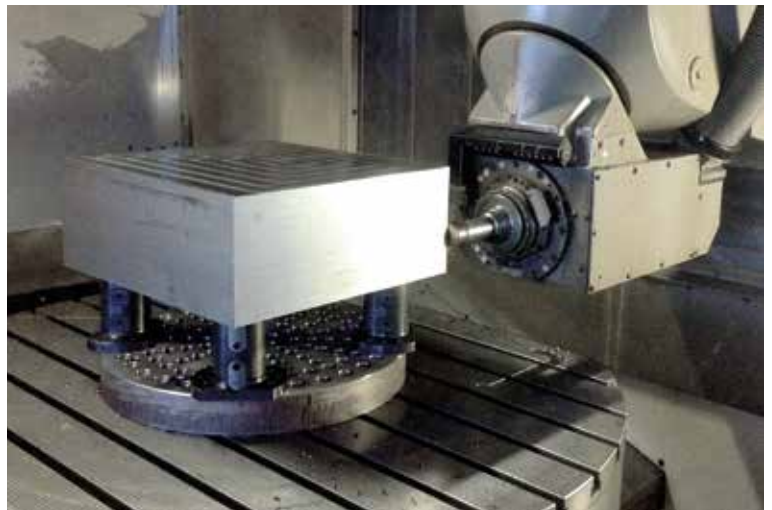
4 basic modules H=100 positioned directly on the machine table. The 4 reducers H=50 on top facilitate optimum access to workpieces.

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



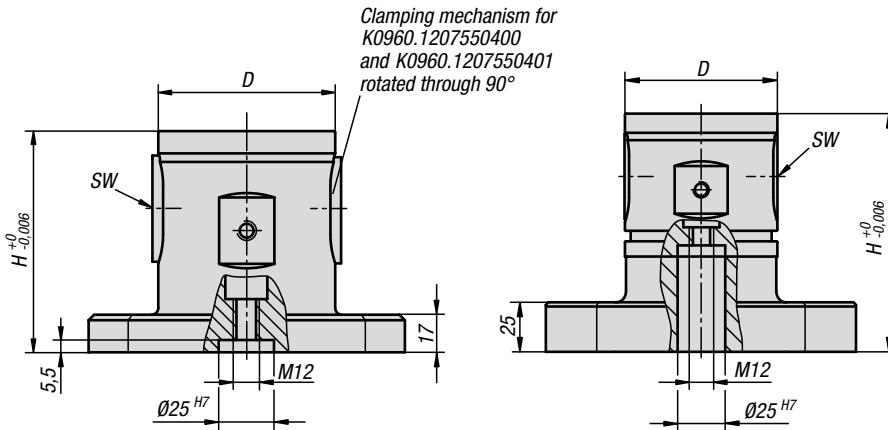
UNILOCK 5-axis basic module

system size 80 mm



foot without elongated hole

foot with elongated hole



Material:
Carbon steel.

Version:
Main body oxidised.
Contact faces hardened and ground.

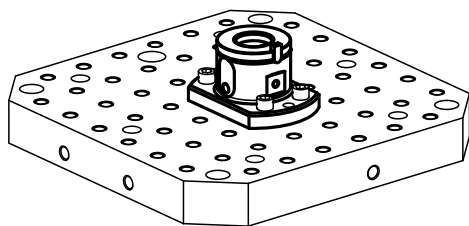
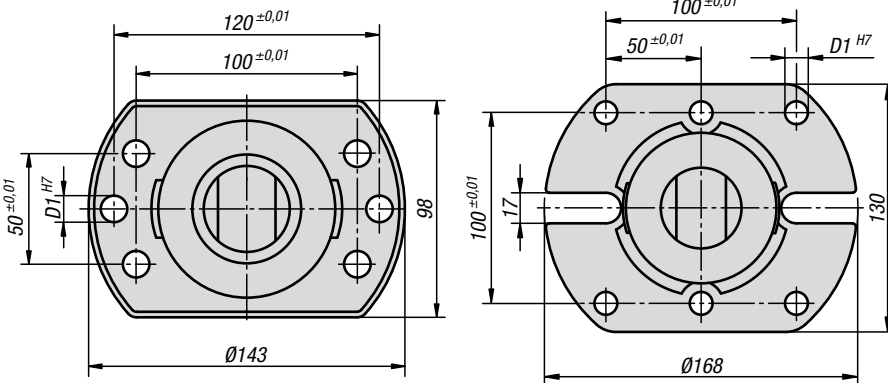
Sample order:
K0960.1207550400

Note:
The UNILOCK 5-axis basic module can be adapted directly to subplates with grid holes or T-slots or to tooling plates with a hole pitch of 40/50 mm system size M12. Suitable for UNILOCK zero point clamping system with UNILOCK clamping bolts. Can also be used on the conventional zero point clamping systems by mounting an appropriate adapter clamping bolt.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:
 - Clamping force (M10) 35,000 N
 - Clamping force (M12) 50,000 N
 - Clamping force (M16) 75,000 N
 Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

On request:
With rotation lock



KIPP UNILOCK 5-axis basic module

Order No.	Version 2	Form	Form-Type	H	D	D1	SW	Tightening torque max. Nm	weight kg
K0960.1207550400	foot without elongated hole	A	without rotation lock	75	80	12	6	15	3,64
K0960.1210050400	foot without elongated hole	A	without rotation lock	100	80	12	6	15	4,6
K0960.12125500	foot with elongated hole	A	without rotation lock	125	80	12	6	15	6,8
K0960.12150500	foot with elongated hole	A	without rotation lock	150	80	12	6	15	7,8
K0960.12175500	foot with elongated hole	A	without rotation lock	175	80	12	6	15	9,26
K0960.16125500	foot with elongated hole	A	without rotation lock	125	80	16	6	15	6,55
K0960.16150500	foot with elongated hole	A	without rotation lock	150	80	16	6	15	7,6
K0960.16175500	foot with elongated hole	A	without rotation lock	175	80	16	6	15	8,45

UNILOCK 5-axis basic module double clamp

size 80 mm



Material:
Carbon steel.

Version:
Main body oxidised.
Contact faces hardened and ground.

Sample order:
K0961.1212550400

Note:
The UNILOCK 5-axis basic module can be adapted directly to subplates with grid holes or T-slots or to tooling plates with a hole pitch of 40/50 mm system size M12. Suitable for UNILOCK zero point clamping system with UNILOCK clamping bolts. Can also be used on the conventional zero point clamping systems by mounting an appropriate adapter clamping bolt. The basic module without base is particularly suitable for space-saving set-ups.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:

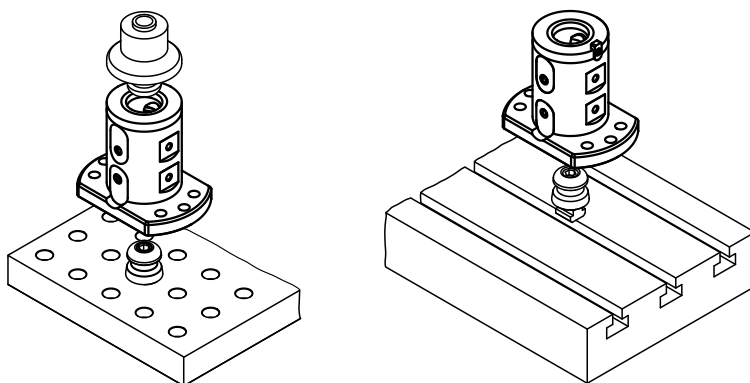
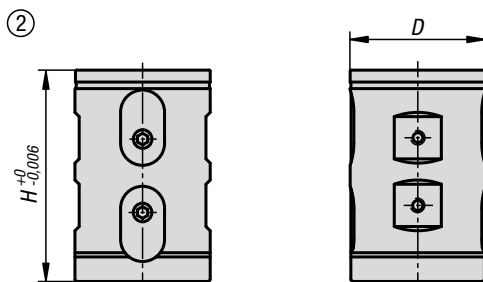
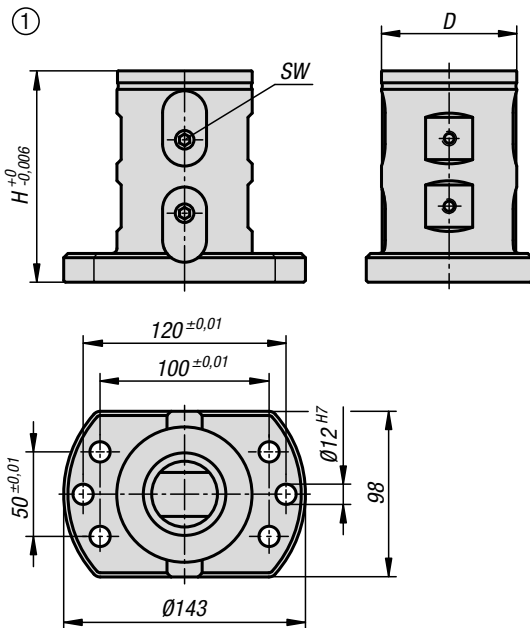
- Clamping force (M10) 35,000 N
- Clamping force (M12) 50,000 N
- Clamping force (M16) 75,000 N

Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

On request:
With rotation lock

Drawing reference:
1) with foot
2) without foot

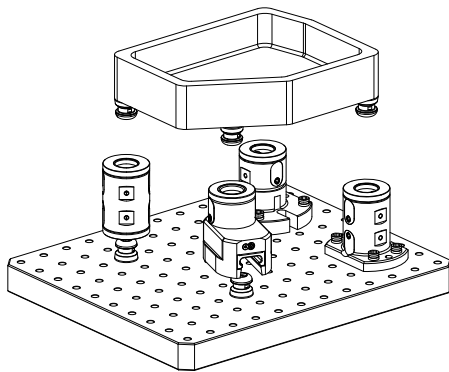
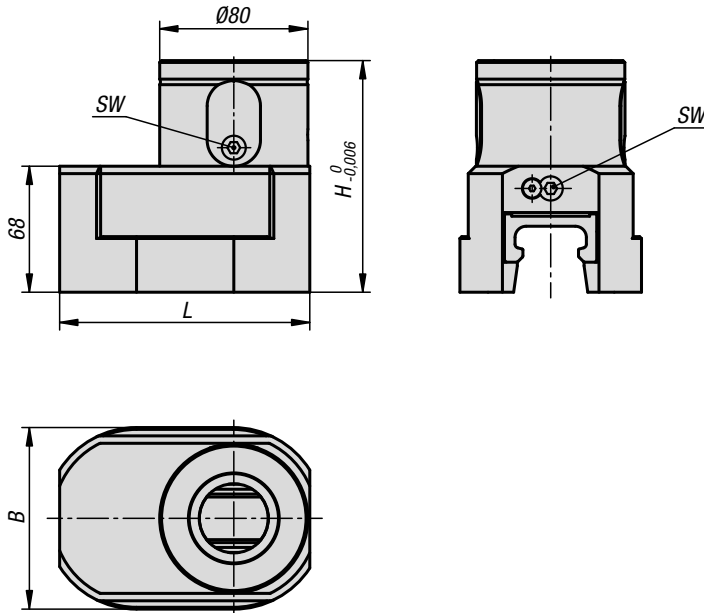


KIPP UNILOCK 5-axis basic module double clamp

Order No.	Product type	Form	Form-Type	D	H	SW	Tightening torque max. Nm	weight kg
K0961.1212550400	with foot	A	without rotation lock	80	125	6	15	4,96
K0961.12500	without foot	A	without rotation lock	80	125	6	15	4,31

UNILOCK 5-axis basic module VARIO

system size 80 mm



Material:

Carbon steel.

Version:

Main body oxidised.
Contact faces hardened and ground.

Sample order:

K1868.135981250

Note:

The UNILOCK 5-axis basic module VARIO enables flexible positioning when clamping workpieces and fixtures. The basic module VARIO can be mounted via one or two UNILOCK clamping pins located in the rail in the base. If two clamping pins are used, the rail is guided between the clamping pins and can only be moved forwards or backwards along the direction of the clamping pins. When using only one UNILOCK clamping pin, the VARIO basic module can be freely rotated. The position is secured using the hex head screw at the rear. Variable gauge sizes can thus be achieved. This basic module is often used as a third or fourth clamping point.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:

- Clamping force (M10) 35,000 N
- Clamping force (M12) 50,000 N
- Clamping force (M16) 75,000 N

Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

A consistent clamping bolt size by the 5-axis module clamping system 80 and compatibility to pneumatic zero-point clamping systems guarantee diverse combinations of application possibilities.

Advantages:

- Adjustable, flexible basic module.
- Mechanical actuation.
- Positioning via short taper.
- High traction force.
- Setup time optimisation.

Accessories:

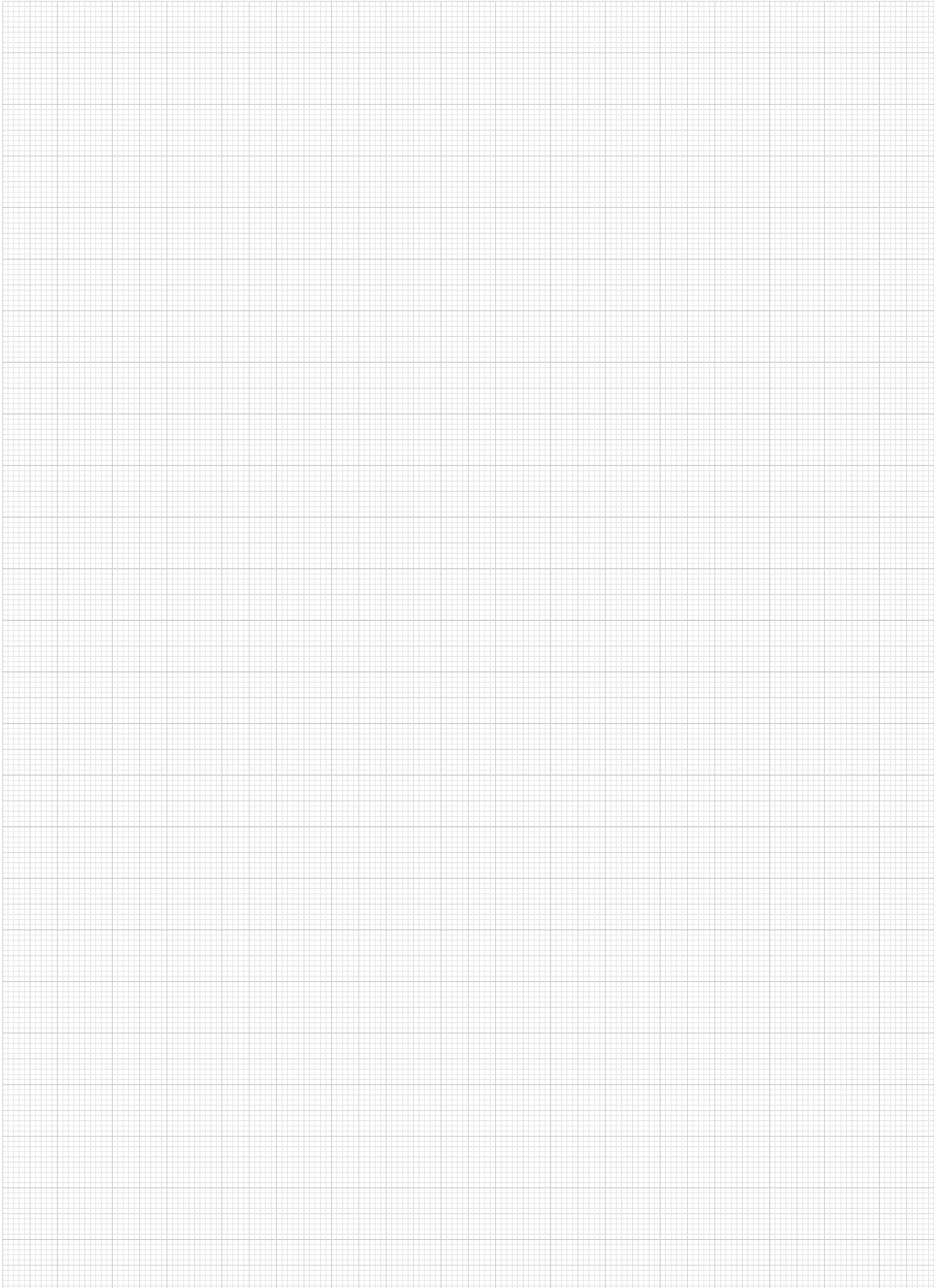
Clamping pins K0967, K0968, K0969, K1471.

Technical data:

- Traction force 15 kN.
- Tightening torque 15 Nm.
- Repeat accuracy ≤ 0.005 mm.

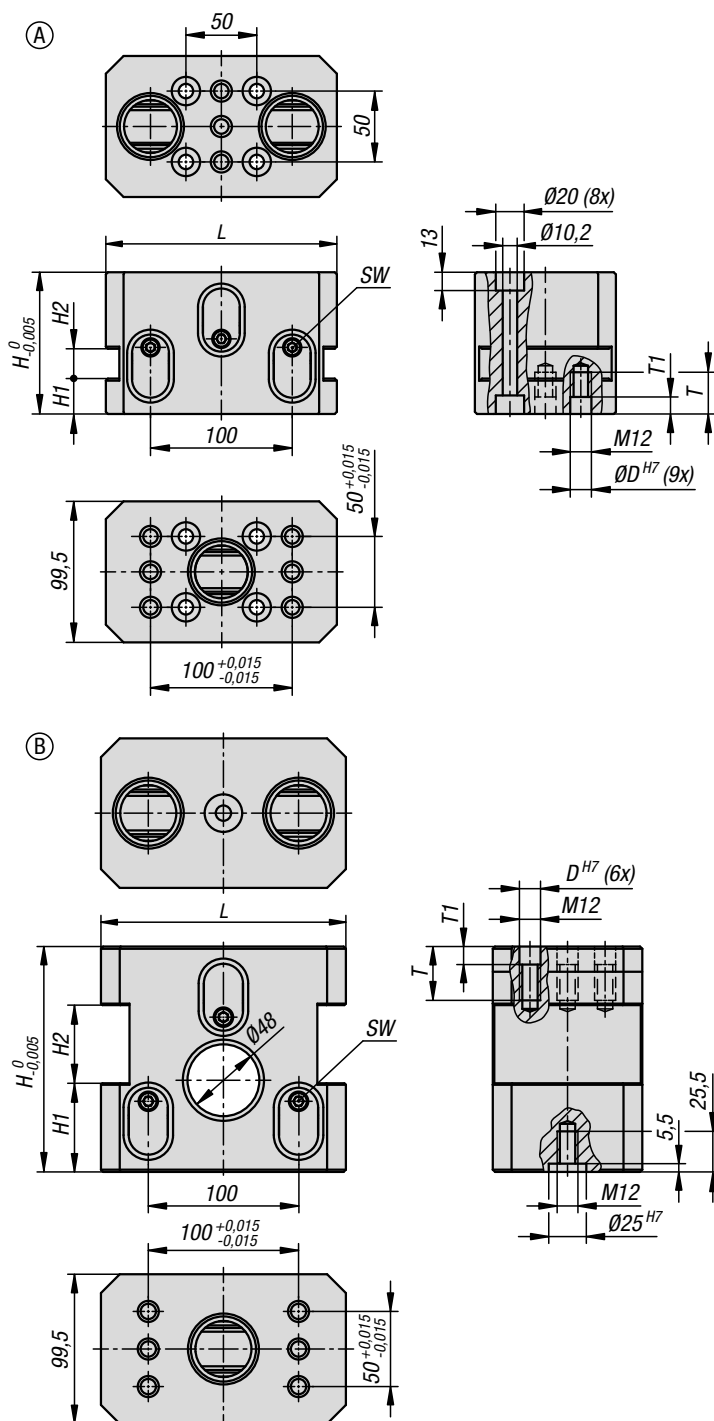
KIPP UNILOCK 5-axis basic module VARIO system size 80 mm

Order No.	L	B	H	SW	Tightening torque max. Nm	Retraction force kN
K1868.135981250	135	98	125	6	15	15



UNILOCK 5-axis basic module DUO

system size 80 mm



Material:
Carbon steel.

Version:
Main body oxidised.
Contact faces hardened and ground.

Sample order:
K1867.12100500

Note:
The UNILOCK 5-axis basic modules DUO with their three interfaces for clamping pins are used for robust, elevated set-ups with heavy workpieces. Compared to round basic modules, the larger sizes provide a larger contact surface. The DUO basic modules can be used with the double interface positioned downwards or upwards. The through holes on both sides of Form A enable additional fastening with cap screws. The Form B version can also be fastened downwards via a clamping bolt on the double interface side. Clamping claws can be used on the lateral clamping edge. The reamed bores enable additional positioning.

For stable vice elevation, two UNILOCK 5-axis basic modules DUO are mounted on the machine table with the double interface facing downwards. The vices are attached to the upwards facing single interface.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M10, M12, M16 fastening screws:
 - Clamping force (M10) 35,000 N
 - Clamping force (M12) 50,000 N
 - Clamping force (M16) 75,000 N
 Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

A consistent clamping bolt size by the 5-axis module clamping system 80 and compatibility to pneumatic zero-point clamping systems guarantee diverse application possibilities.

KIPP UNILOCK 5-axis basic module DUO system size 80 mm

Order No.	Form	L	H	D	H1	H2	SW	T	T1	Tightening torque max. Nm	Retraction force kN
K1867.12075500	A	149,5	75	12	25	25	6	16,5	5,5	15	15
K1867.12100500	A	162,5	100	12	25	21	6	30	12	15	15
K1867.12150500	B	162,5	150	12	59	52	6	35	12	15	15

UNILOCK 5-axis basic module DUO

system size 80 mm

**Advantages:**

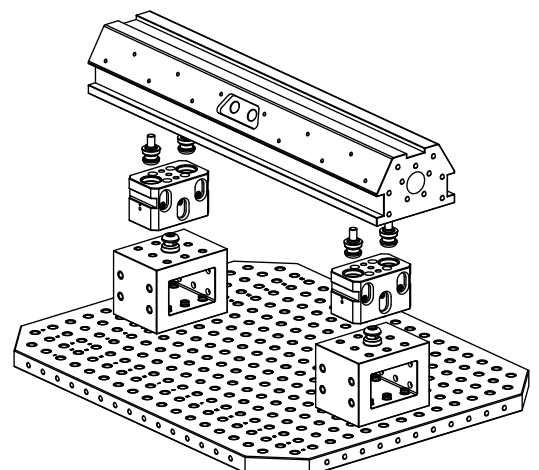
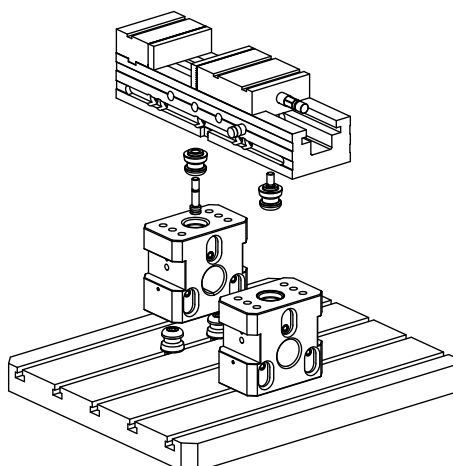
- Robust basic module.
- Three interfaces for clamping pins.
- Flexible fastening possibilities.
- Mechanical actuation.
- Positioning via short taper.
- High traction force.
- Setup time optimisation.

Accessories:

Clamping pins K0967, K0968, K0969, K1471.

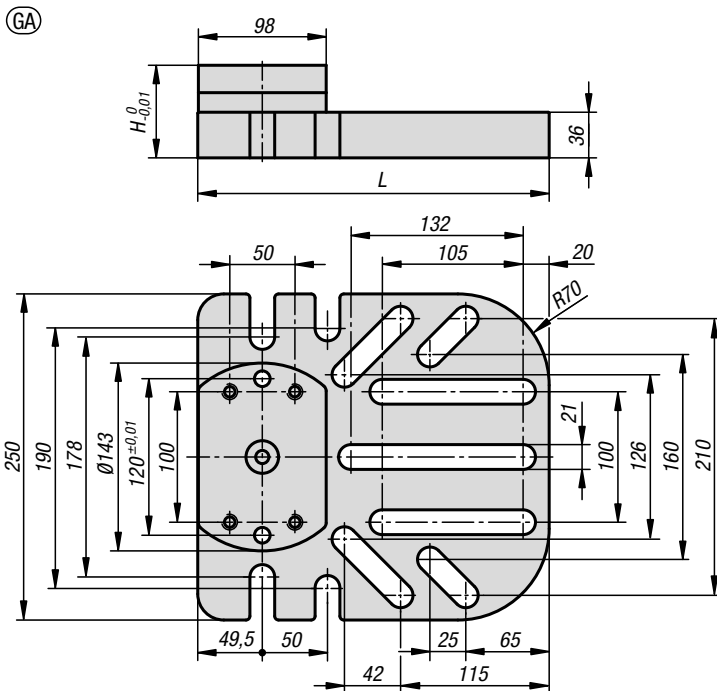
Technical data:

- Traction force 15 kN.
- Tightening torque 15 Nm.
- Repeat accuracy ≤ 0.005 mm.



UNILOCK 5-axis base plate

for general clamping, system size 80 mm



Material:
Steel.

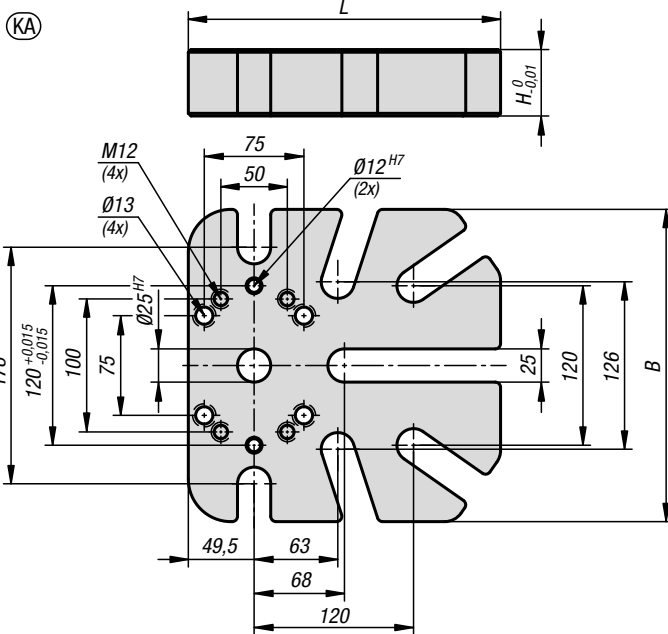
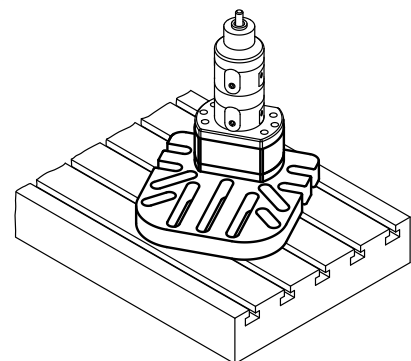
Version:
Main body oxidised.
Contact faces case-hardened and ground.

Sample order:
K0962.25027005021

Note:
The UNILOCK 5-axis baseplates for general clamping fit onto machine tables with grid hole systems or in T-slots, or onto grid hole tooling plates. Due to their robust construction, these elevated devices are ideal as a base supports for large and heavy workpieces. The arrangement of the fastening slots facilitates flexible adaptation to the workpiece and the machine table. Wider T-slot spacings can be achieved with the larger version.
In the small version, the fastening slots are open for improved chip evacuation.

Advantages:
Stable base structure for mounting the 5-axis basic modules for clamping large and heavy workpieces. Rapid fastening of the base plates onto a machine table due to a large number of fastening slots. Flexible positioning of the workpieces on the machine table.

Drawing reference:
Form GA: large version
Form KA: small version

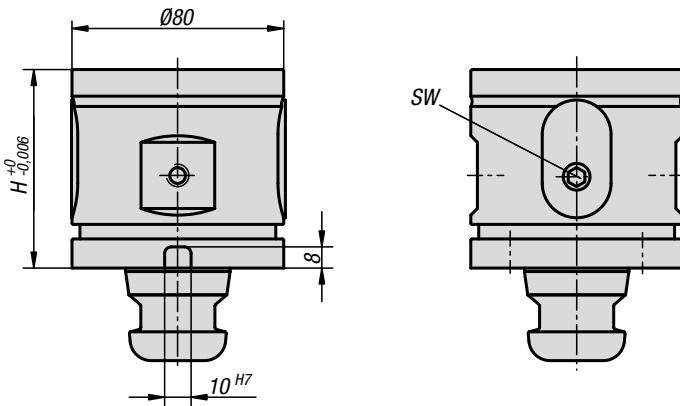


KIPP UNILOCK 5-axis base plate for general clamping

Order No.	Version 2	L	B	H	Fastening hole	weight kg
K0962.25027005021	large version	269,5	250	50	max. M20	14,7
K0962.23523505025	small version	235	235	50	max. M24	15,3

UNILOCK 5-axis add-on clamping module

size 80 mm



Material:

Body Q&T steel.
Clamping pin mild steel.

Version:

Body and clamping pin oxidised.
Contact faces hardened and ground.

Sample order:

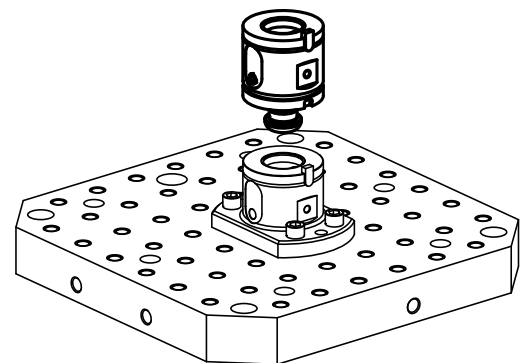
K0963.120750

Note:

The UNILOCK 5-axis add-on modules are used for raising basic modules and mounting base. Depending on the clamping situation, optimum assembly height can be achieved using a combination of the basic module and add-on module.

On request:

With rotation lock



KIPP UNILOCK 5-axis add-on clamping module

Order No.	Form-Type	H	SW	Tightening torque max. Nm	weight kg
K0963.120750	without rotation lock	75	6	15	2,64
K0963.121000	without rotation lock	100	6	15	3,78
K0963.121250	without rotation lock	125	6	15	4,625

UNILOCK 5-axis face-grip adapter

size 80 mm



Material:

Body rust-free tool steel.
Clamping pin low carbon steel.

Version:

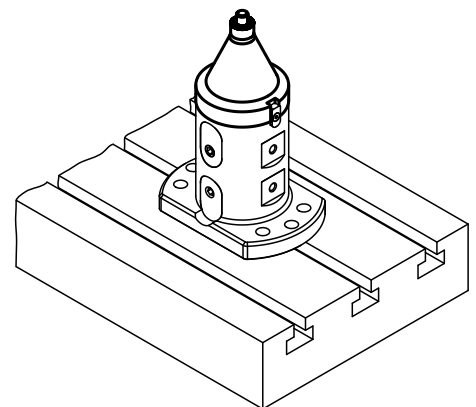
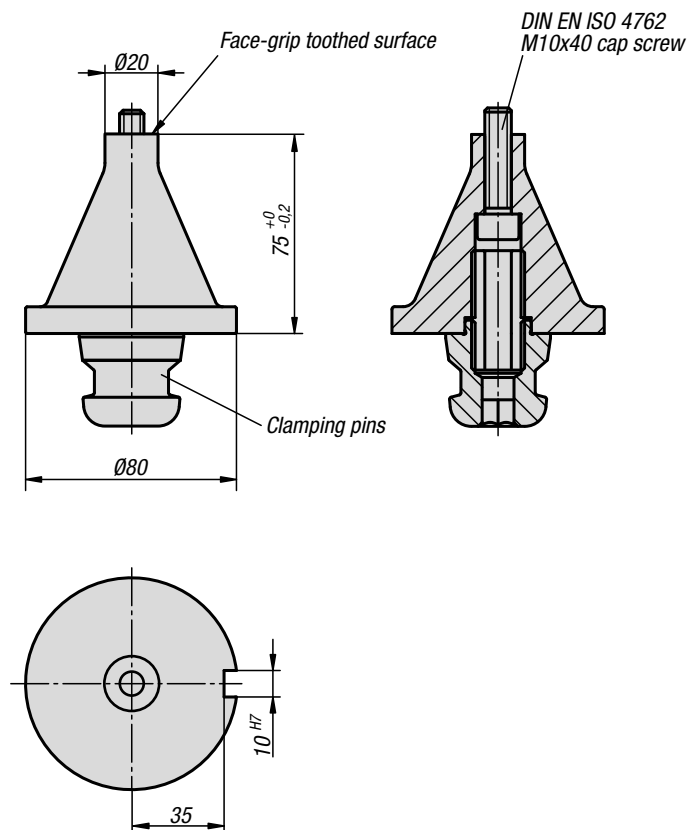
Contact faces on the body hardened and ground.
Clamping pin oxidised. Contact faces hardened and ground.

Sample order:

K0965.2007510

Note:

The UNILOCK 5-axis face-grip adapters are suitable for clamping workpieces, which must be machined on all sides. The workpieces are freely accessible without interfering edges from the clamping elements. The workpieces are attached from below using a socket head screw to pull them onto the face-grip toothed surface. The face-grip adapters can be directly mounted on the basic module with rotation lock or on the add-on module H 75 mm with rotation lock.



KIPP UNILOCK 5-axis face-grip adapter

Order No.

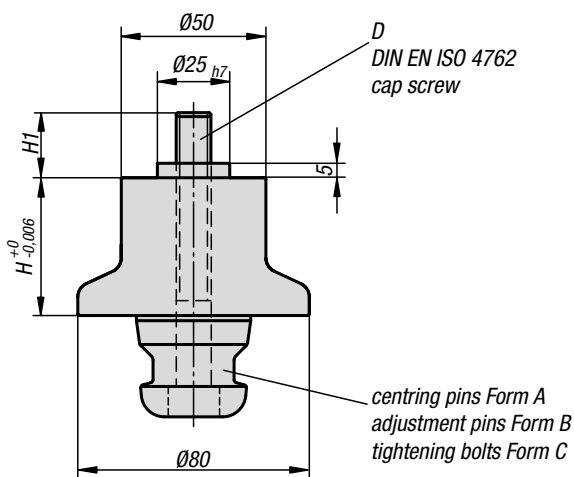
Dimensions




K0965.2007510

see drawing

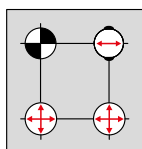
UNILOCK 5-axis reducer adapter

size 80 mm



-  Centring pins = Form A
-  Adjustment pins = Form B
-  Tightening bolts = Form C

fixes in x and y axis (reference point)
 fixes the free axis (bayonet pin)
 Pins with undersize (no centring function, clamping only)



Material:

Body rust-free tool steel.
 Clamping pin low carbon steel.

Version:

Contact faces on the body hardened and ground.
 Clamping pin oxidised. Contact faces hardened and ground.

Sample order:

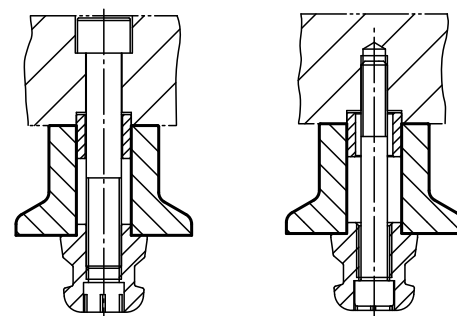
K0966.501120

Note:

The UNILOCK 5-axis reducer adapter is suitable for clamping and positioning workpieces. Reducer adapters can be screwed onto the workpiece and mounted on the basic module or add-on module. Reducer adapters are available as hardened versions.

On request:

- Soft version
- Height 25 mm

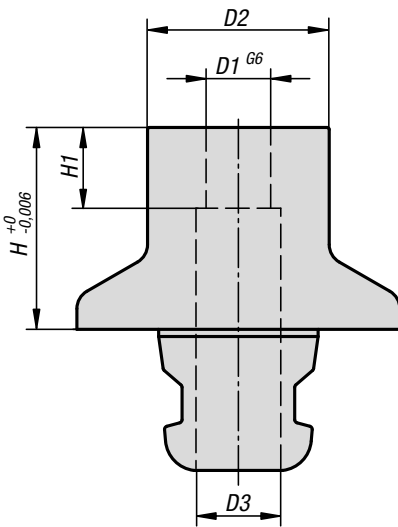


KIPP UNILOCK 5-axis reducer adapter

Order No.	Form	Form-Type	D	H	H1
K0966.501101	A	Centring Pin	M10 x 100	50	25,5
K0966.502101	B	Adjustment pin	M10 x 100	50	25,5
K0966.503101	C	Clamping Pin	M10 x 100	50	25,5
K0966.501121	A	Centring Pin	M12 x 100	50	27,5
K0966.502121	B	Adjustment pin	M12 x 100	50	27,5
K0966.503121	C	Clamping Pin	M12 x 100	50	27,5

UNILOCK 5-axis reducer adapter

size 80 mm



Material:

Rust resistant tool steel.

Version:

One-piece.

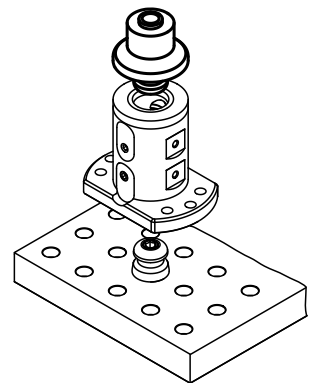
Contact faces hardened and ground.

Sample order:

K0966.5011611

Note:

The UNILOCK 5-axis reducer adapters are suitable for clamping and positioning workpieces. The workpiece is positioned and screwed to the reducer adapter using the UNILOCK shoulder screw for workpiece fastening.

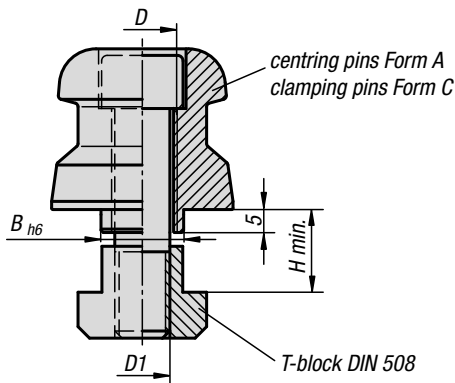


KIPP UNILOCK 5-axis reducer adapter

Order No.	D1	D2	D3	H	H1
K0966.5011611	16	40	21	50	20

UNILOCK T-slot centring clamp bolt

size 80 mm

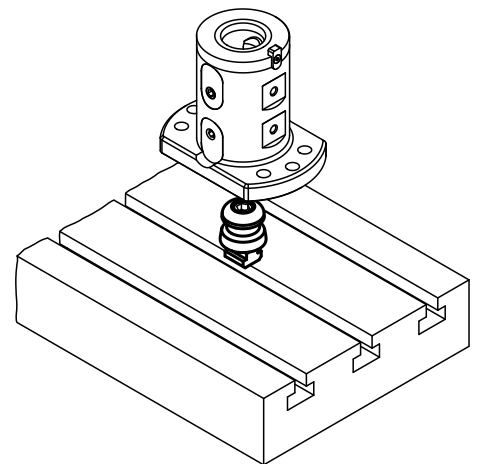


Material:
Steel.

Version:
Hardened and black oxidised.
Contact faces ground.

Sample order:
K0969.114

Note:
The UNILOCK T-slot centring clamp bolt is suitable for clamping and positioning the basic module with double manual clamping. T-slot centring clamp bolts are positioned and fastened on the T-slot machine table.

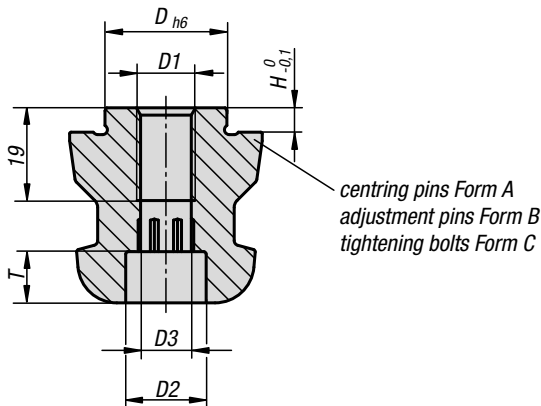
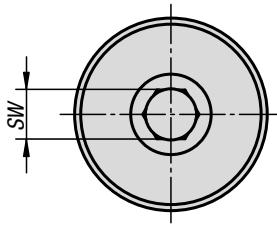





KIPP UNILOCK T-slot centring clamp bolt

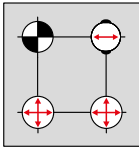
Order No.	Form	D	D1	B	H min.
K0969.114	A	M12	M10	14	14
K0969.118	A	M16	M12	18	18

UNILOCK clamping pins

size 80 mm



-  Centring pins = Form A fixes in x and y axis (reference point)
-  Adjustment pins = Form B fixes the free axis (bayonet pin)
-  Tightening bolts = Form C Pins with undersize (no centring function, clamping only)



Material:
Steel.

Version:
Hardened and black oxidised.
Contact faces ground.

Sample order:
K0967.140160512

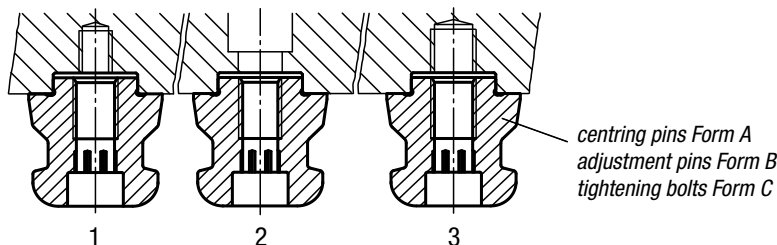
Note:
The UNILOCK clamping pin is suitable for clamping and positioning workpieces and fixtures. Clamping pins are screwed onto the exchange element and adapted to the various basic modules.

The following retaining forces are possible when the UNILOCK clamping pins are used together with M10, M12 or M16 fastening screws:

- Retaining force (M10) 35,000N
 - Retaining force (M12) 50,000N
 - Retaining force (M16) 75,000N
- Clamping force with DIN EN ISO 4762 -12.9 cap screws.

Other clamping pins in the same system size are available under K1471, K0968 and K0967 with threaded pin.

- 1 = fastening with DIN 912 screw through the tightening bolt
- 2 = fastening with DIN 912 screw through the fixture or workpiece
- 3 = fastening with grub screw DIN 913



KIPP UNILOCK clamping pins

Order No. Form A	Order No. Form B	Order No. Form C	D	D1	D2	D3	H	T	SW
K0967.140160512	K0967.240160512	K0967.340160512	16	M12	16,5	10,3	5	10,5	10
K0967.140180512	K0967.240180512	K0967.340180512	18	M12	16,5	10,3	5	10,5	10
K0967.140220516	K0967.240220516	K0967.340220516	22	M16	18,5	14,2	5	12,5	17
K0967.140250512	K0967.240250512	K0967.340250512	25	M12	16,5	10,3	5	10,5	10
K0967.140250516	K0967.240250516	K0967.340250516	25	M16	18,5	14,2	5	12,5	17

UNILOCK clamping pins

with through hole, system size 80 mm



Material:

Steel.

Version:

Hardened and black oxidised.

Contact faces ground.

Swivel fastening screw M16x65, tempered and black oxidised.

Sample order:

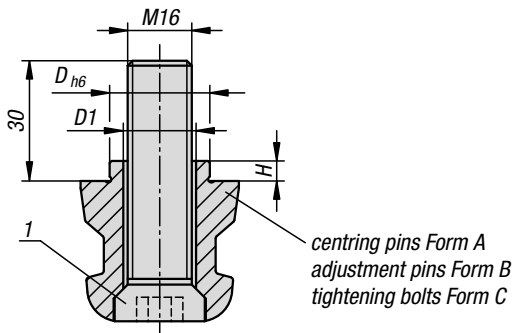
K1471.140250516

Note:

The UNILOCK clamping pin is suitable for clamping and positioning workpieces and fixtures. Clamping pins are screwed onto the exchange element and adapted to the various basic modules.

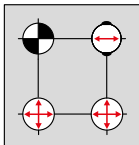
Drawing reference:

- 1) Swivel fastening screw M16x65.
Grade 10.9.



centring pins Form A
adjustment pins Form B
tightening bolts Form C

- Centring pins = Form A fixes in x and y axis (reference point)
- Adjustment pins = Form B fixes the free axis (bayonet pin)
- Tightening bolts = Form C Pins with undersize (no centring function, clamping only)

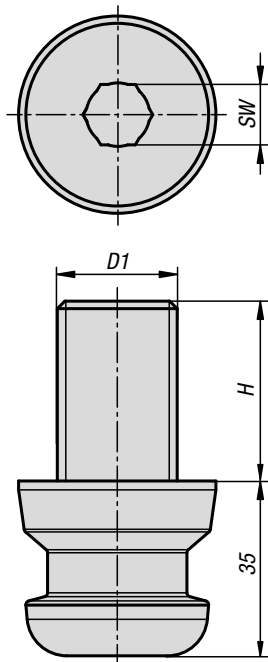


KIPP UNILOCK clamping pins with through hole

Order No.	Form	D	D1	H	Tightening torque max. Nm
K1471.140250516	A	25	16,5	5	120
K1471.240250516	B	25	16,5	5	120
K1471.340250516	C	25	16,5	5	120

UNILOCK clamping pin

with threaded pin size 80 mm



Material:

Steel.

Version:




Hardened and black oxidised.
Contact faces ground.

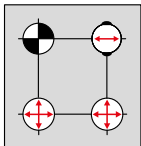
Sample order:

K0967.140003020

Note:

The UNILOCK clamping pin is suitable for clamping and positioning workpieces and fixtures. Clamping pins are screwed onto the exchange element and adapted to the various basic modules.

-  Centring pins = Form A fixes in x and y axis (reference point)
-  Adjustment pins = Form B fixes the free axis (bayonet pin)
-  Tightening bolts = Form C Pins with undersize (no centring function, clamping only)



KIPP UNILOCK clamping pin with threaded pin

Order No.	Form	D1	H	SW
K0967.140002416	A	M16	24	17
K0967.140003020	A	M20	30	17
K0967.140003624	A	M24	36	17

UNILOCK 5-axis clamping bolts

for fastening to workpieces size 80 mm

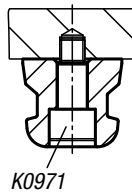
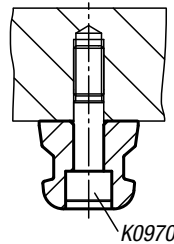
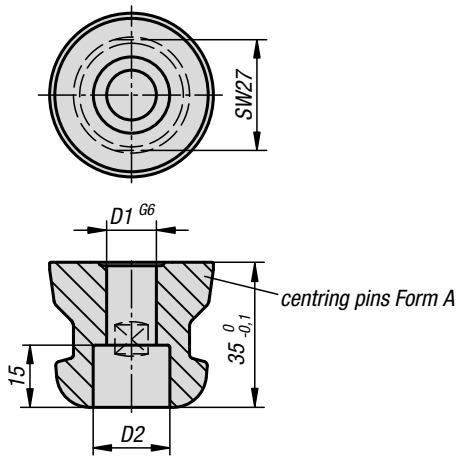


Material:
Steel.

Version:
Hardened and black oxidised.
Contact faces ground.

Sample order:
K0968.12

Note:
The UNILOCK clamping bolt is suitable for clamping and positioning the workpiece. Clamping bolts are screwed onto the workpiece and positioned on the basic module or add-on module. Using the locating bolts (K0970, K0971), the clamping bolts are screwed onto the workpiece.



KIPP UNILOCK 5-axis clamping bolts for fastening to workpieces

Order No.	Form	D1	D2
K0968.12	A	12	18,4
K0968.16	A	16	21,1

K0970

UNILOCK 5-axis shoulder screws

size 80 mm

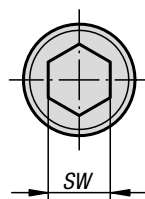
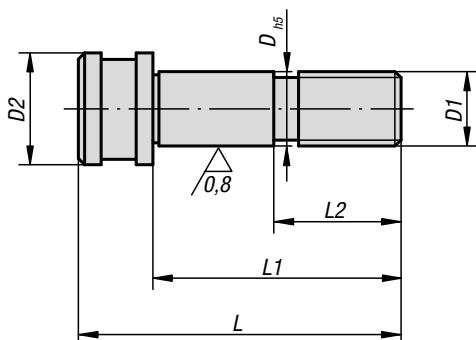


Material:
Carbon steel.

Version:
Hardened surface.
ground locating seat.

Sample order:
K0970.12050

Note:
The UNILOCK 5-axis locating bolts are suitable for clamping and positioning the clamping bolts for fastening to workpieces. They are also used for positioning and fastening the basic module.

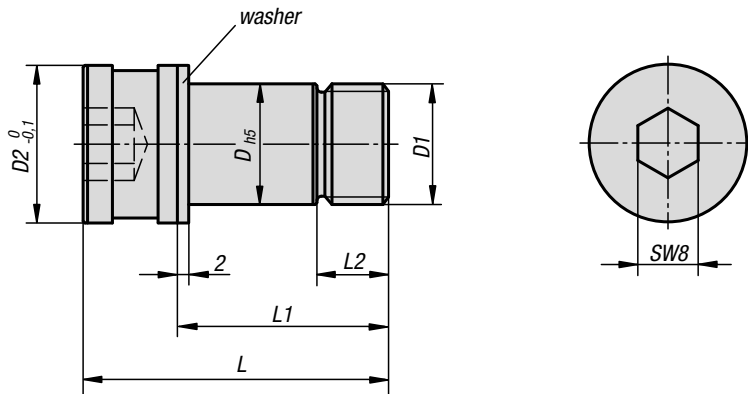


KIPP UNILOCK 5-axis shoulder screws

Order No.	D	D1	D2	L	L1	L2	SW
K0970.12050	12	M12	18	62	50	22	10
K0970.16055	16	M16	20,9	71	55	25	14

UNILOCK 5-axis shoulder screws

for fastening to workpieces, size 80 mm



Material:

Carbon steel.

Version:

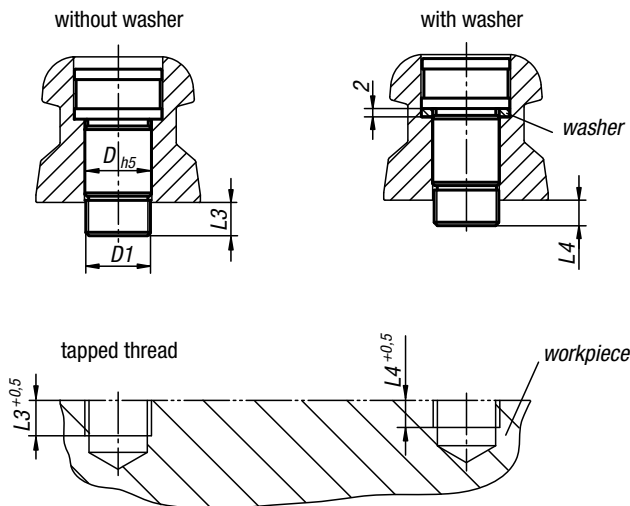
Hardened surface.
ground locating seat.

Sample order:

K0971.16121040

Note:

The UNILOCK 5-axis locating bolts for fastening to workpieces are suitable for clamping and positioning workpieces. These locating bolts are passed through the clamping bolts for fastening to workpieces, screwed directly into the workpiece and positioned on the basic module or add-on module. The thread is used for fastening and positioning the workpiece.

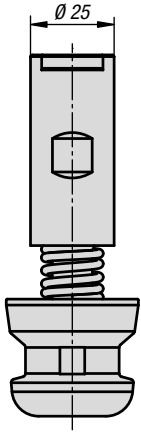


KIPP UNILOCK 5-axis shoulder screws for screwing clamping bolt to workpiece

Order No.	Version	D	D1	D2	L	L1	L2	L3	L4	Tightening torque max. Nm
K0971.16101040	without washer	16	M10x1,5	20,9	40,5	28	9,5	8	6	47
K0971.16121040	with washer	16	M12x1,75	20,9	40,5	28	9,5	8	6	63
K0971.16121049	without washer	16	M12x1,75	20,9	50	37,5	18	17,5	15,5	80
K0971.16161055	without washer	16	M16x2	20,9	56	43,5	24	23,5	21,5	100

UNILOCK centring clamping bolt

size 80 mm



Material:

Steel.

Version:

Hardened and black oxidised.
Contact faces ground.

Sample order:

K1012.1240

Note:

The centring clamping bolts can be used to position basic modules on machine tables. Centring clamping bolts can be clamped in collet holders. The position of the module is defined via the machine's spindle/control unit.

Can be used in Weldon, Whistle Notch and collet holders.

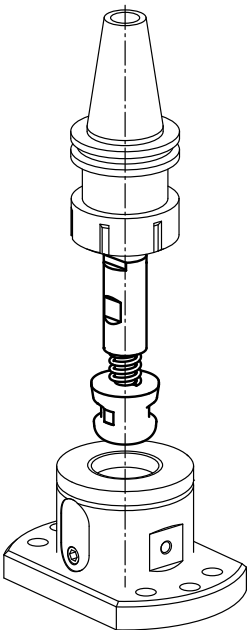
Repeat accuracy: < 0.021mm

Positioning accuracy: < 0.049mm

Shock absorber function to protect the machine spindle

Cushioning travel: 5.4mm

Caution: Exceeding the cushioning travel of 5.4mm may damage the machine.



KIPP UNILOCK centring clamping bolt, size 80 mm

Order No.

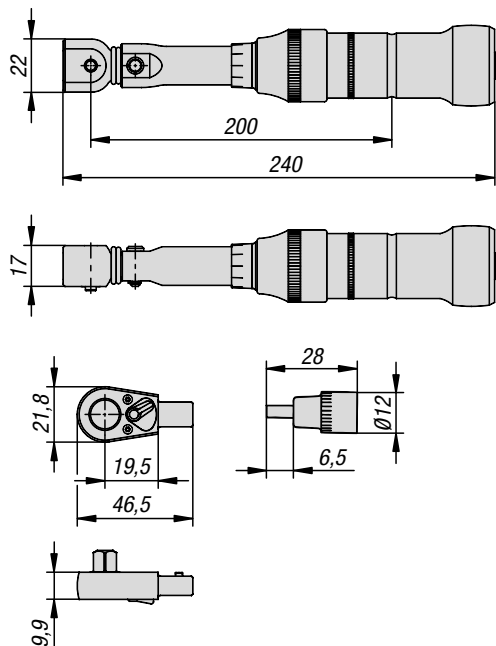
Dimensions

K1012.1240

see drawing

Torque wrench

for 5-axis module clamping system



Supplied with:

Set comprising:
Torque wrench
Plug-in reversible ratchet
Screwdriver insert SW4
Screwdriver insert SW6
Screwdriver insert SW8

Functional principle:

Operating principle of torque wrench handles
To unlock, pull handle back approximately 8 mm.
Continue to turn handle up to the desired torque.
Then turn the handle back a bit to lock it.

Suitable for:

5-axis module clamping system 80
5-axis module clamping system 50
5-axis module clamping system 138

Material:

Steel.

Version:

Surface: hard chromed

Sample order:

K1488.01

Note:

Torque wrench 4-40 set:
Release precision +/- 2% of the scale value (in direction of actuation)
High-precision premium metrology instrument – for highest demands
Robust and tough hard chrome-plated steel construction in a slim model
Secure: - haptic (shortcut release)
- acoustic (buckling element)
User-friendly reversible ratchet.
Service-friendly (ratchet repair sets for customer-oriented self-assembly)
Integrated switch lever
Setting of the desired torque value fast and securely through turning of the handle
Twist knob for additional locking of the setting
Ergonomically shaped handle with collar reduces danger of slipping or injury
Exact, fine scale gradation
With serial number and calibration certificate
Hard chrome-plated surface
DIN EN ISO 6789-2:2017, square acc. to DIN 3120, ISO 1174-1

Details of plug-in reversible ratchet:

20 teeth, max. 40Nm
Output 6.3 = 1/4 inch
Square acc. to DIN 3120, ISO 1174-1
Drop forged
Chromed surface

Note for plug-in reversible ratchet:

Through fast insertion of the plug-in reversible ratchet into the torque wrench, the precision of 2% in both directions can be guaranteed.

Screwdriver bit:

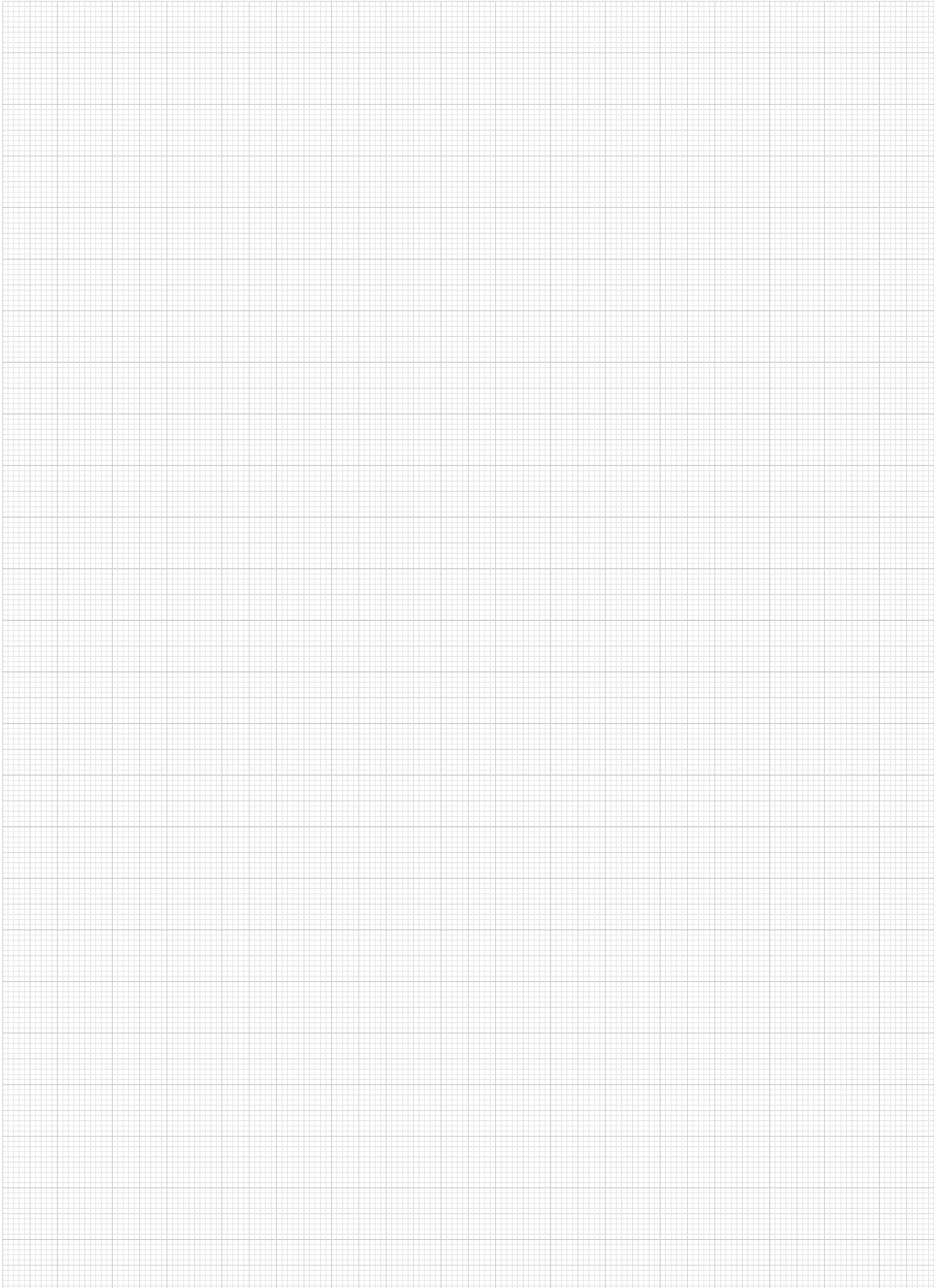
Surface TiN
DIN 7422
Square 1/4 inch
Suitable for reversible ratchet

Recommendation:

Annual check interval for torque wrenches, in which the upper limit is 5,000 load cycles.

KIPP Torque wrench for 5-axis module clamping system

Order No.	Item	Version 1	Product type	Torque Nm
K1488.01	Torque Wrench	set	revolving grip	4 - 40



5-axis module clamping system 50



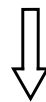
Technical information for 5-axis module clamping system 50



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	10 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 10 Nm actuation torque = 10,000 N



Axial load and retraction path

Axial load $F_{Axial} = 25,000 \text{ N (2.5 t)}$

Retraction travel = 0.3 mm

Tilt/torque single module

$M_{\text{tilt module}} = 150 \text{ Nm (empirically determined)}$

$M_{\text{rotation module}} = 25 \text{ Nm}$

$F_{\text{lateral force}} = 1,000 \text{ N [lateral force without relative movement]*}$

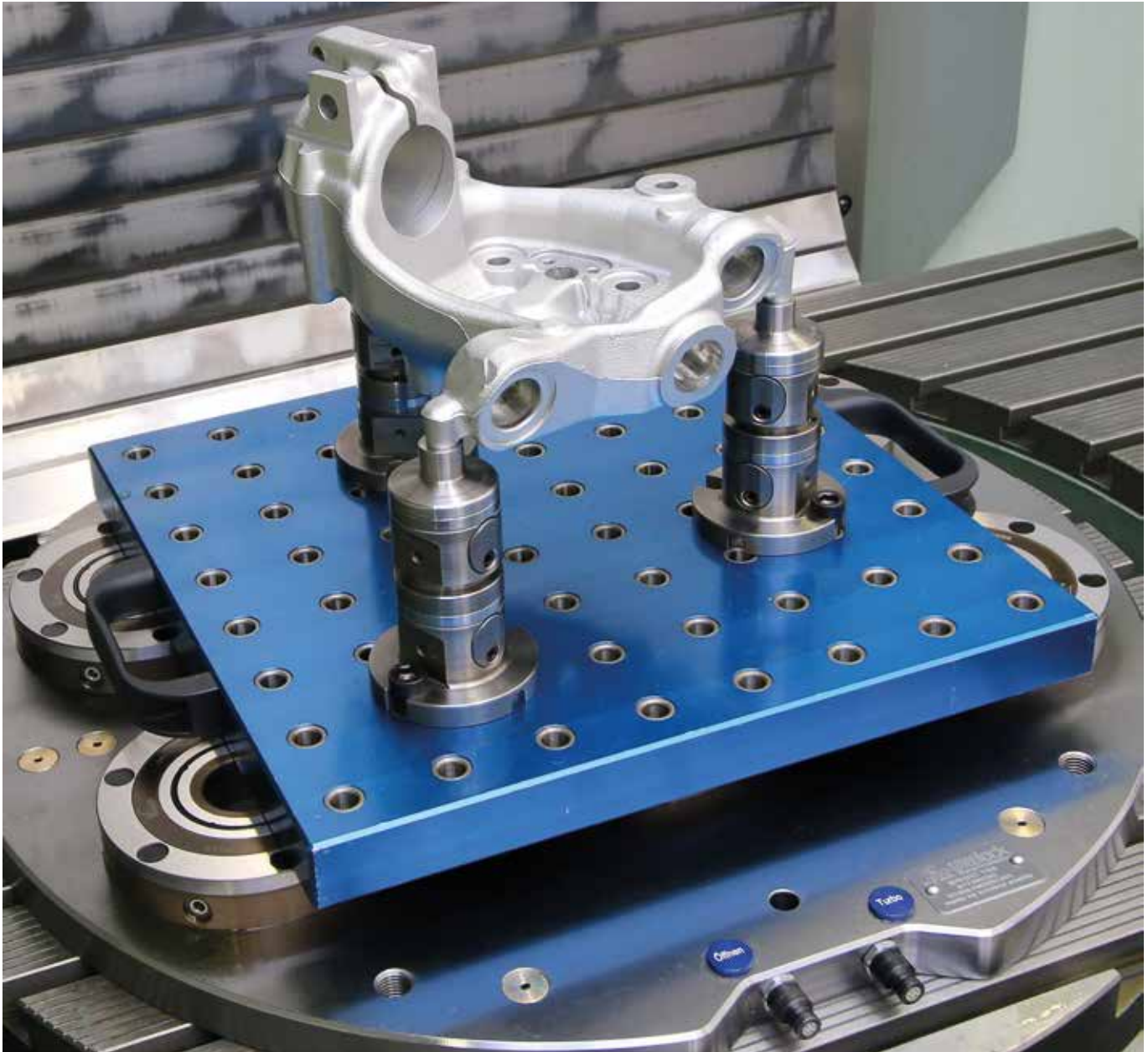


* The correct function of the clamping modules, in particular the repeat accuracy, is guaranteed up to a lateral force of 1,000 N. The failsafe and personal safety of the clamping modules is assured up to a critical lateral force of 7,000 N.

Function



The UNILOCK clamping system 50 mm has been developed specifically for 5-side machining of small workpieces.



Advantages:

- 5-side machining with no protruding edges
- Modular construction guarantees maximum flexibility
- Can be combined with the UNILOCK modular system 80 mm
- Small gauges for modules from 40 mm possible
- Small clamping pin, D 25 mm, for workpieces with smaller dimensions
- Variable workpiece fastening
- The workpiece is simply positioned and clamped with screws or seatings
- High module clamping force
- Very high repeat accuracy



UNILOCK 5-axis basic module

system size 50 mm



Material:

Carbon steel.

Version:

Main body oxidised.

Contact faces hardened and ground.

Sample order:

K1117.12050601

Note:

UNILOCK 5-axis basic modules, system size 50, can be adapted directly to machine tables with grid holes or T-slots, as well as grid hole subplates. The basic module system size 50 can also be combined with system size 80. This enables smaller workpieces to be easily clamped using the module clamping system.

Fits onto UNILOCK zero-point clamping system with UNILOCK clamping pin $D=18$ mm.

Can also be mounted directly onto commonly available zero-point clamping systems if a suitable clamping pin is used.

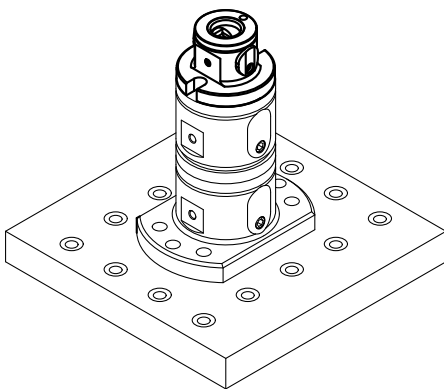
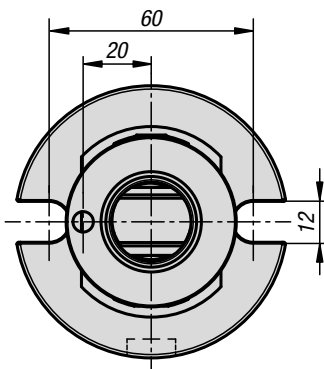
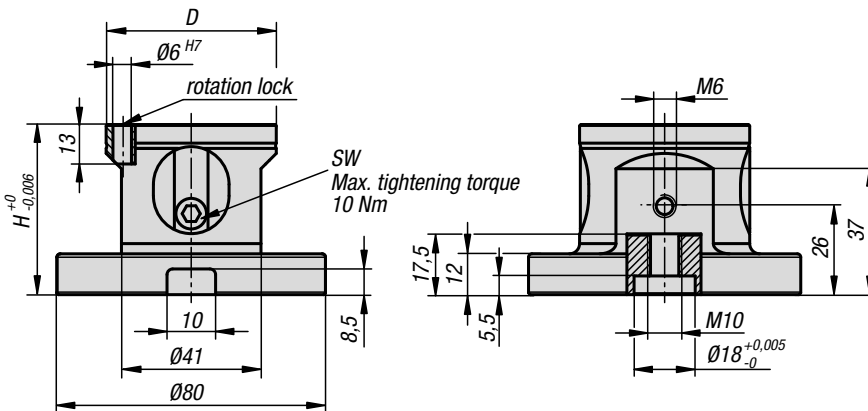
The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M8, M10 fastening screws:

- Clamping force (M8) 15,000 N

- Clamping force (M10) 25,000 N

Clamping force with DIN EN ISO 4762 - 12.9 cap screws.

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

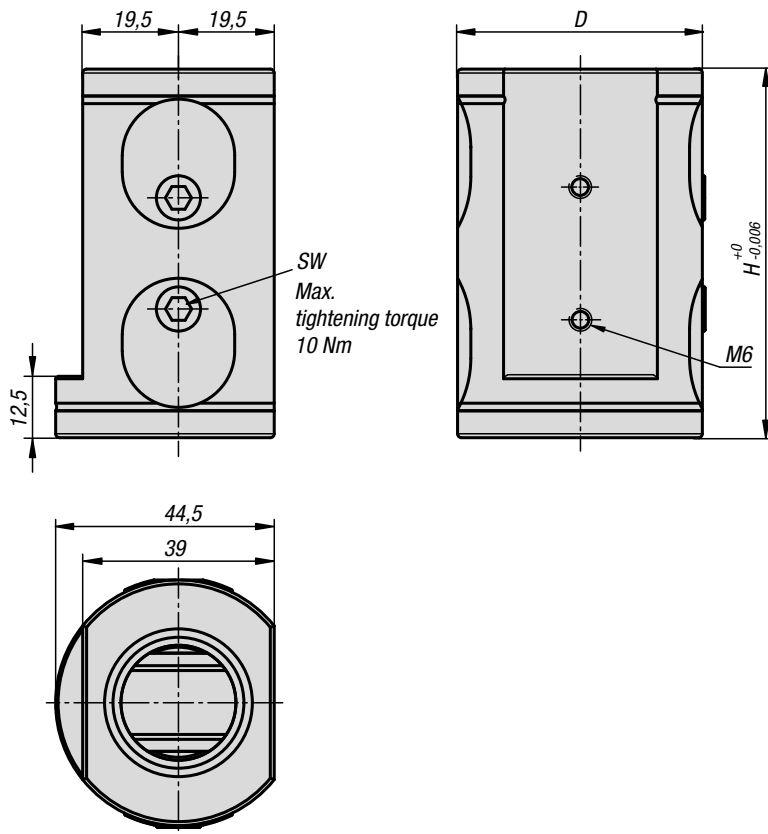


KIPP UNILOCK 5-axis basic module, system size 50 mm

Order No.	Form	Form-Type	D	H	SW	Retraction force kN	Tightening torque max. Nm
K1117.12050601	B	with rotation lock	50	50	4	10	10

UNILOCK 5-axis basic module double clamp

system size 50 mm



Material:

Carbon steel.

Version:

Main body oxidised.

Contact faces hardened and ground.

Sample order:

K1118.000750

Note:

The UNILOCK 5-axis double clamp basic modules can be adapted directly to machine tables with grid holes or T-slots, as well as grid hole subplates.

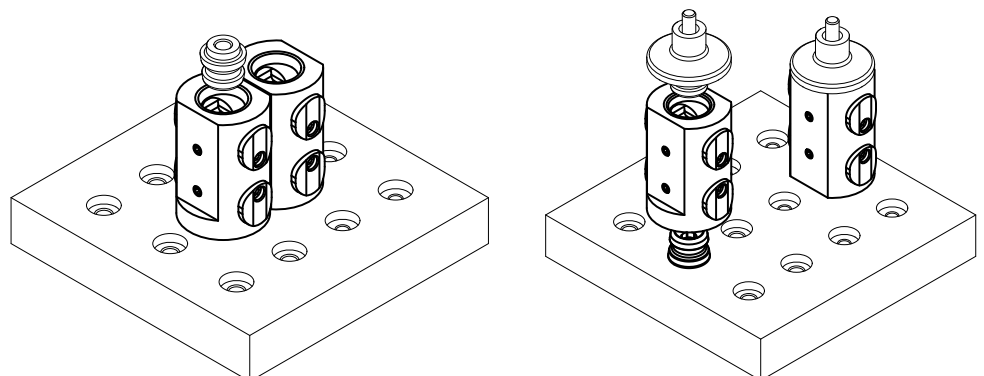
The narrow design of the basic module enables it to be used on grid spacings from 20 mm.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M8, M10 fastening screws:

- Clamping force (M8) 15,000 N
- Clamping force (M10) 25,000 N

Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.

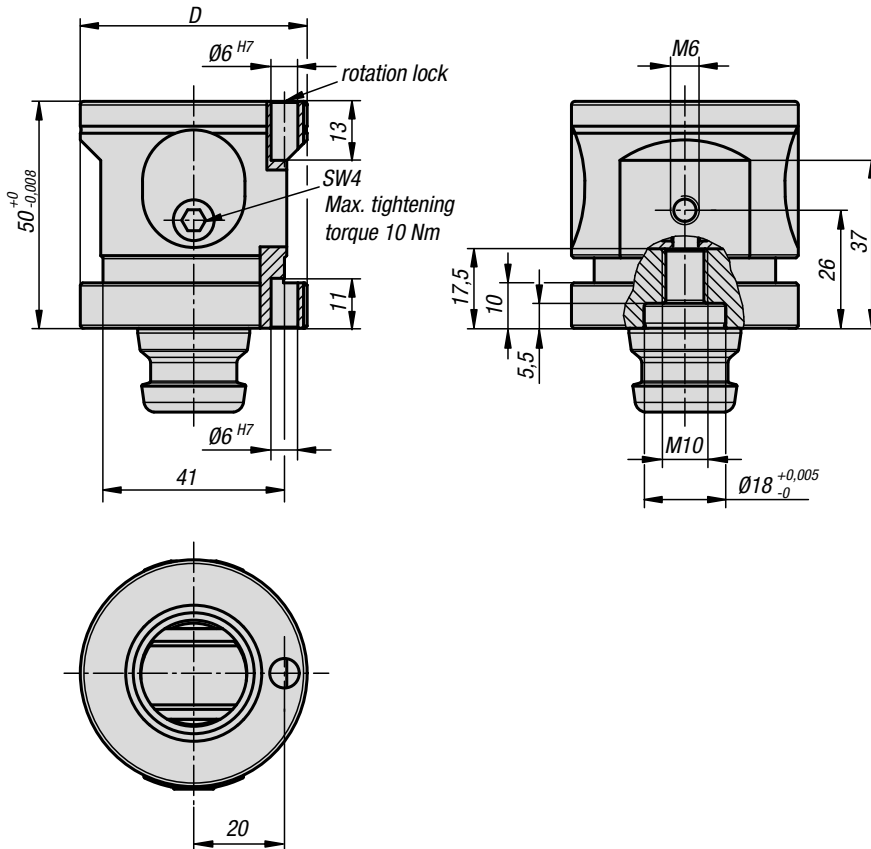


KIPP UNILOCK 5-axis basic module, double clamp, system size 50 mm

Order No.	D	H	SW	Retraction force kN	Tightening torque max. Nm
K1118.000750	50	75	4	10	10

UNILOCK 5-axis add-on module

system size 50 mm



Material:

Body Q&T steel.
Clamping pin mild steel.

Version:

Main body oxidised.
Contact faces hardened and ground.

Sample order:

K1119.0501

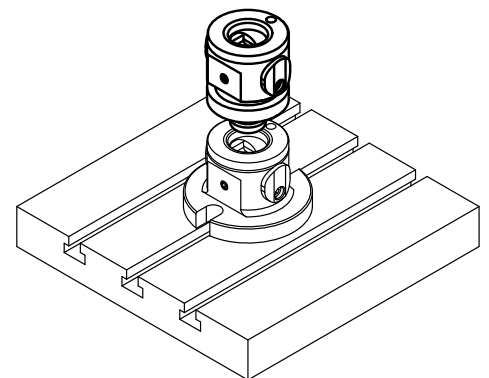
Note:

UNILOCK 5-axis add-on clamp modules are used for raising basic modules and mounting bases. Depending on the clamping situation, optimum assembly height can be achieved using a combination of basic module and add-on module. The add-on clamping module system size 50 can also be combined with system size 80.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M8, M10 fastening screws:

- Clamping force (M8) 15,000 kN
 - Clamping force (M10) 25,000 kN
- Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.



KIPP UNILOCK 5-axis add-on module, system size 50 mm

Order No.	Form	Form-Type	D	H	SW	Retraction force kN	Tightening torque max. Nm
K1119.0501	B	with rotation lock	50	50	4	10	10

UNILOCK 5-axis reducer adapter

system size 50 mm



Material:

Rust resistant tool steel.

Version:

Contact faces hardened and ground.
Body and clamping pin are one piece.

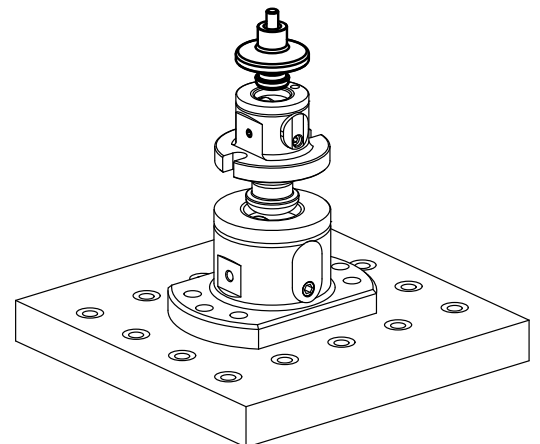
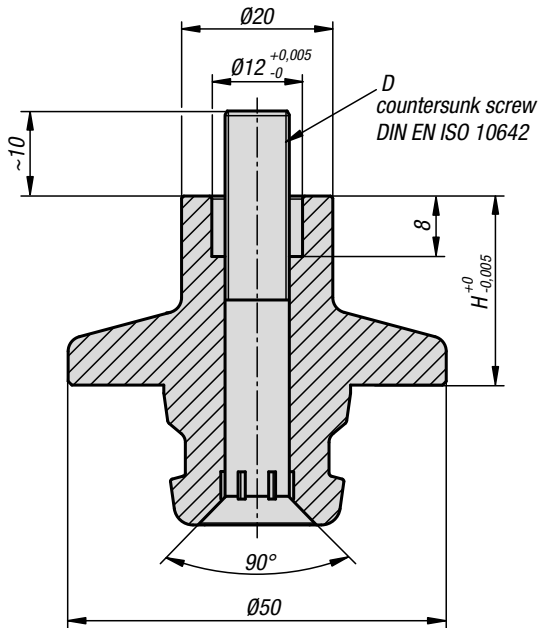
Sample order:

K1120.251081

Note:

The UNILOCK 5-axis reducer adapter is suitable for clamping and positioning workpieces. Reducer adapters can be screwed onto the workpiece and mounted on the basic module or add-on clamp module.

The system size 50 add-on module can also be combined with the system size 80.

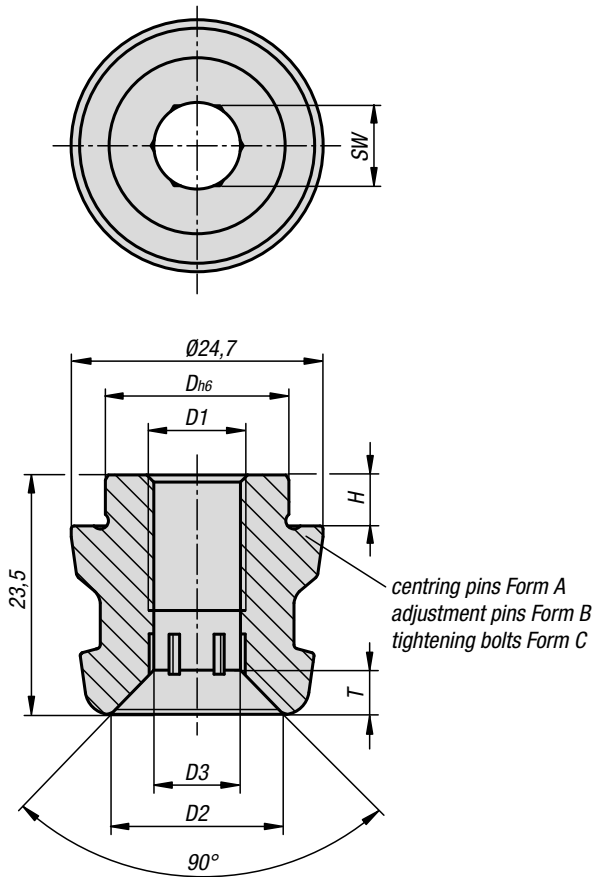


KIPP UNILOCK 5-axis reducer adapter, system size 50 mm

Order No.	Form	D	H
K1120.251081	A	M8	25
K1120.501081	A	M8	50

UNILOCK clamping pin

system size 50 mm






Material:
Steel.

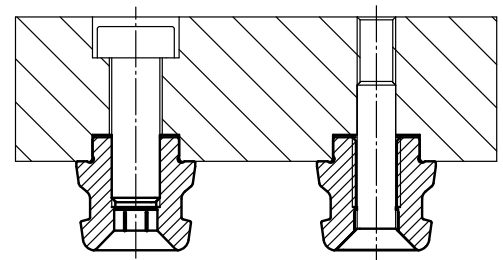
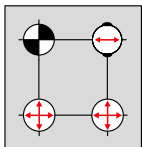
Version:
Main body oxidised.
Contact faces hardened and ground.

Sample order:
K1121.125180510

Note:
The UNILOCK clamping pin is suitable for clamping and positioning workpieces and fixtures. Clamping pins are screwed onto the exchange element and adapted to the various basic modules.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M8, M10 fastening screws:
- Clamping force (M8) 15,000 N
- Clamping force (M10) 25,000 N
Clamping force with DIN EN ISO 4762 -12.9 cap screws.

-  Centring pins = Form A fixes in x and y axis (reference point)
-  Adjustment pins = Form B fixes the free axis (bayonet pin)
-  Tightening bolts = Form C Pins with undersize (no centring function, clamping only)



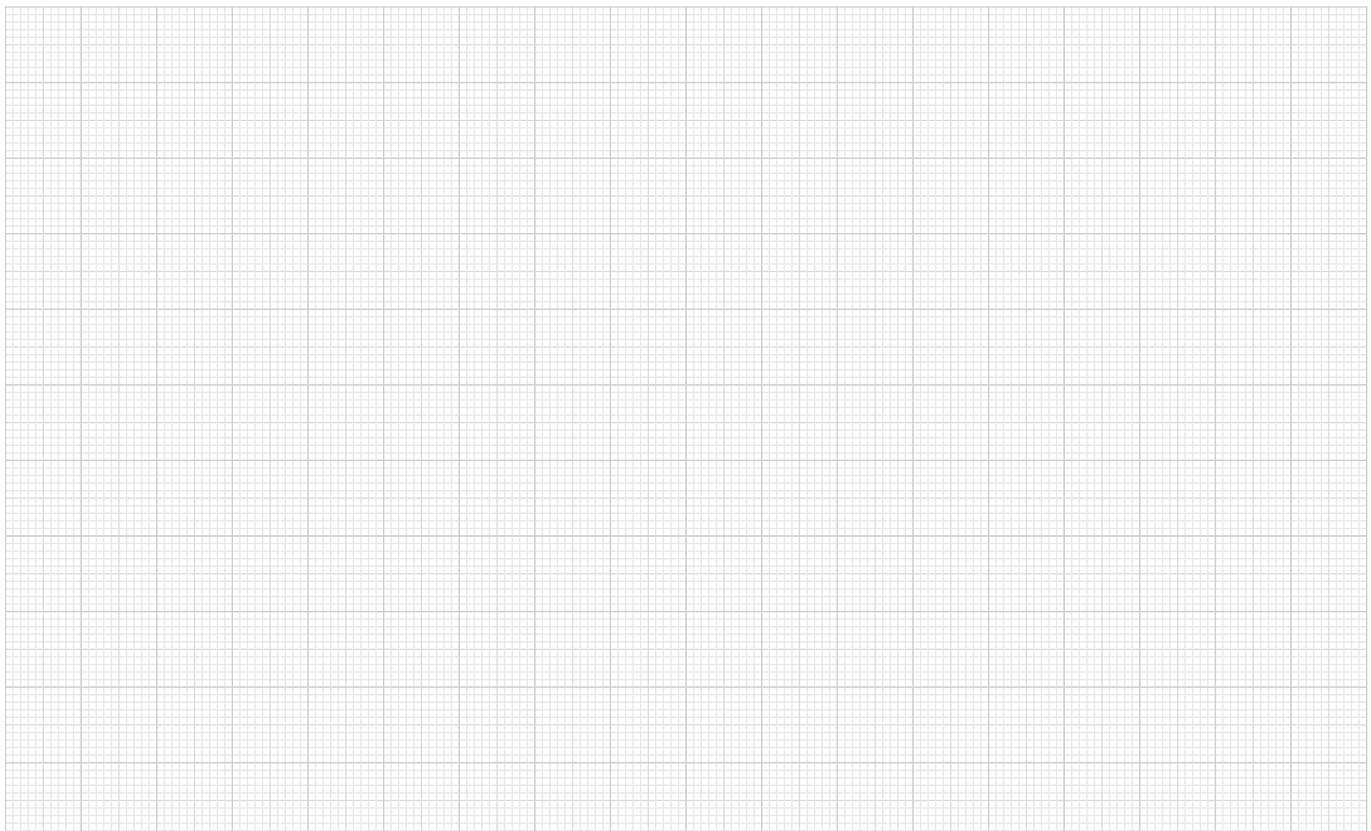
KIPP UNILOCK clamping pin, system size 50 mm

Order No.	Form	D1	D	D2	D3	H	T	SW
K1121.125180510	A	M10	18	16,5	9	5	5	8
K1121.225180510	B	M10	18	16,5	9	5	5	8
K1121.325180510	C	M10	18	16,5	9	5	5	8

Application example



Notes



5-axis module clamping system 138



Technical information for 5-axis module clamping system 138



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	30 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 30 Nm actuation torque = 30,000 N

Axial load and retraction path

Axial load $F_{Axial} = 45,000 \text{ N (4.5 t)}$

Retraction travel = 0.7 mm



Tilt/torque single module

$M_{\text{tilt module}} = 1,000 \text{ Nm}$ (empirically determined)

$M_{\text{rotation module}} = 200 \text{ Nm}$

$F_{\text{lateral force}} = 3,000 \text{ N}$ [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 3,000 N. The failsafe and personal safety of the clamping modules is assured up to a critical lateral force of 20,000 N.

UNILOCK 5-axis basic module

system size 138 mm



Material:

Carbon steel.

Version:

Main body oxidised.

Contact faces hardened and ground.

Sample order:

K1419.1380750

Note:

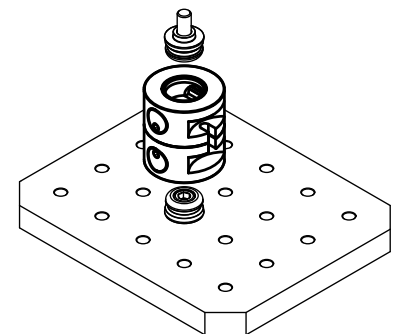
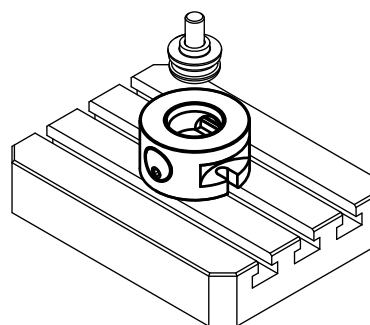
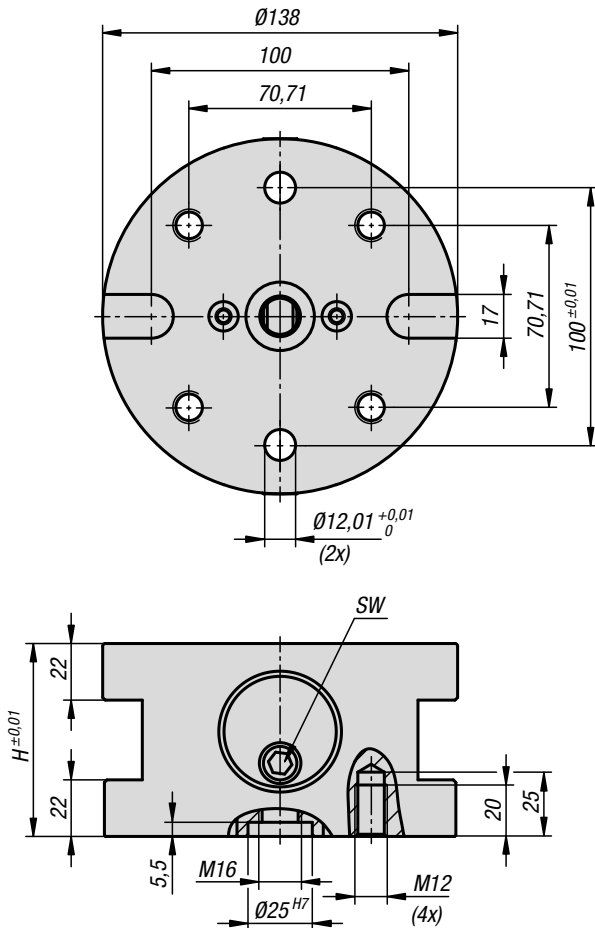
The UNILOCK 5-axis basic module with system size 138 is suitable for clamping large and heavy workpieces. The workpiece can be set directly in the basic module using the clamping bolt or reducer adapter. The basic modules are fastened via the corresponding baseplates or directly to the machine table. A flexible positioning is possible. A double clamping module can also be created by placing two modules together, underside to underside.

The following clamping forces are possible with the UNILOCK clamping pin in conjunction with M16, M20, M24 fastening screws:

- Clamping force (M16) 75,000 N
- Clamping force (M20) 160,000 N
- Clamping force (M24) 230,000 N

Clamping force with DIN EN ISO 4762 -12.9 cap screws

Clamping pins may only be clamped in conjunction with a mounted interchangeable unit in the clamping module.



KIPP UNILOCK 5-axis basic module, system size 138 mm

Order No.	Form	Form-Type	H	SW	Tightening torque max. Nm
K1419.1380750	A	without rotation lock	75	8	30

UNILOCK 5-axis baseplate

for general clamping, size 138 mm



Material:

Steel.

Version:

Main body oxidised.

Contact faces hardened and ground.

Sample order:

K1420.23523505025

Note:

The UNILOCK baseplates can be easily mounted on T-slot or grid plate machine tables. Due to their variable designs, these baseplates can be positioned anywhere on the machine table enabling every part of the machine table to be used.

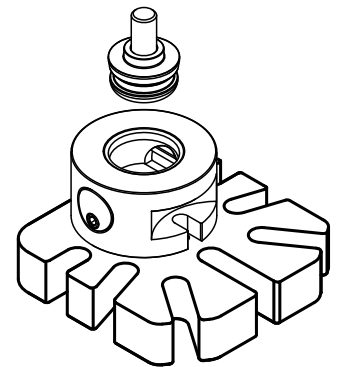
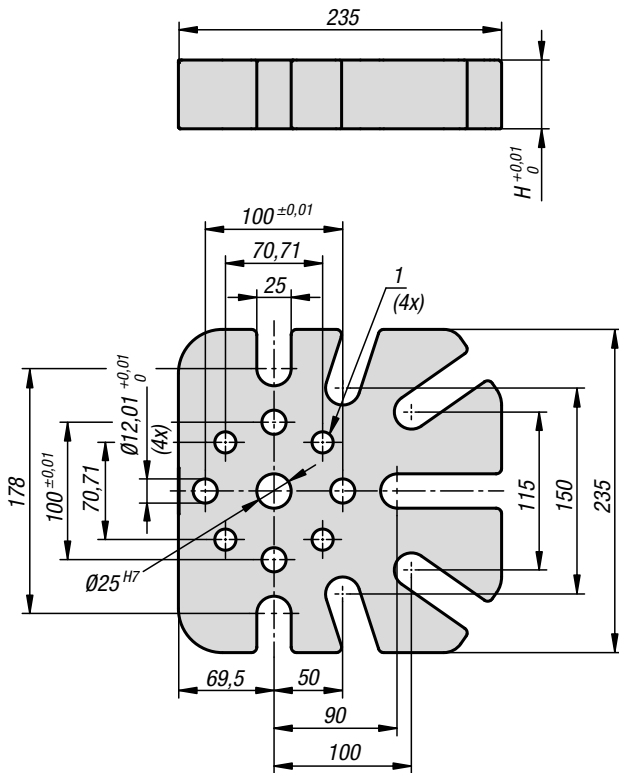
Due to their sturdy design, these baseplates are ideal for use as a basic element for large and heavy workpieces.

On request:

Other versions.

Drawing reference:

1) for DIN 912 M12 cap screw



KIPP UNILOCK 5-axis baseplate for general clamping, size 138 mm

Order No.

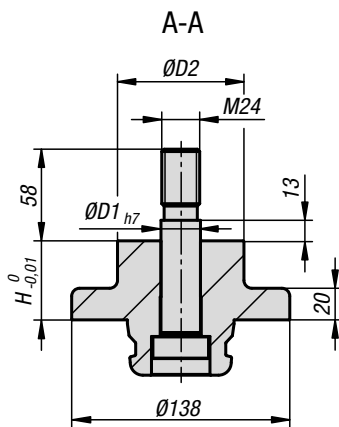
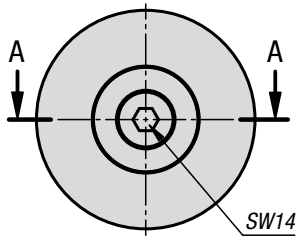
H

K1420.23523505025

50

UNILOCK 5-axis reducer adapter

system size 138 mm



Material:

Steel.

Version:

Main body oxidised.

Contact faces case-hardened and ground.

Sample order:

K1422.0501241080

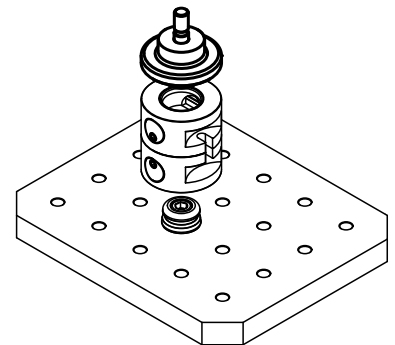
Note:

The UNILOCK 5-axis reducer adapter is suitable for clamping and positioning workpieces.

Reducer adapters can be screwed onto the workpiece and mounted on the basic module or add-on clamp module.

On request:

Other versions.

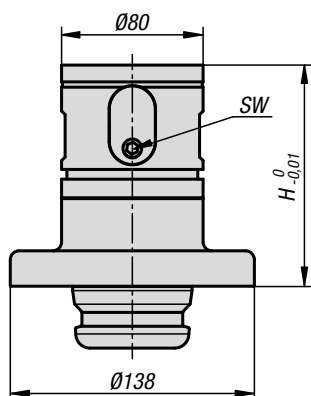


KIPP UNILOCK 5-axis reducer adapter, system size 138 mm

Order No.	D1	D2	H
K1422.0501241080	25	80	50

UNILOCK 5-axis reducer adapter

system size 138 mm



Material:

Steel.

Version:

Main body oxidised.

Contact faces case-hardened and ground.

Sample order:

K1423.1251

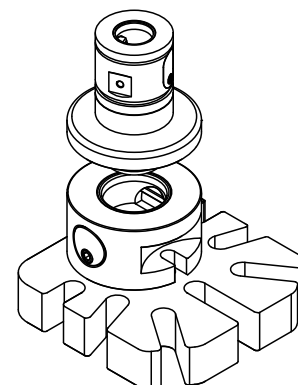
Note:

The UNILOCK 5-axis reducer adapters are used to convert from size 80 to size 138.

They therefore allow all size 80 elements to continue to be used.

On request:

Other versions.

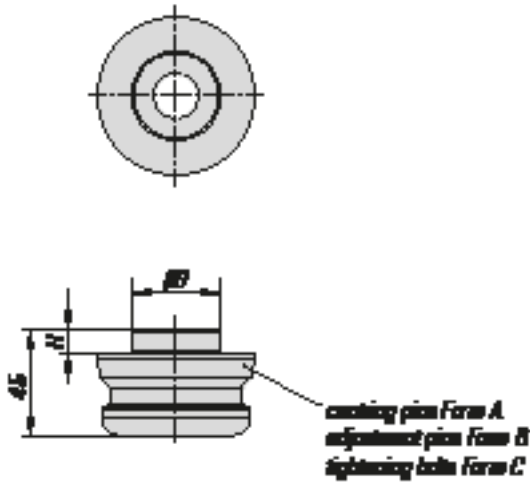


KIPP UNILOCK 5-axis reducer adapter, system size 138 mm

Order No.	H	SW	Holding force F kN	Tightening torque max. Nm
K1423.1251	125	6	50	15

UNILOCK clamping pin

system size 138 mm



Material:
Steel.

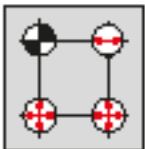
Version:
Main body black oxide finish.
Contact faces hardened and ground.

Sample order:
K1424.168381025

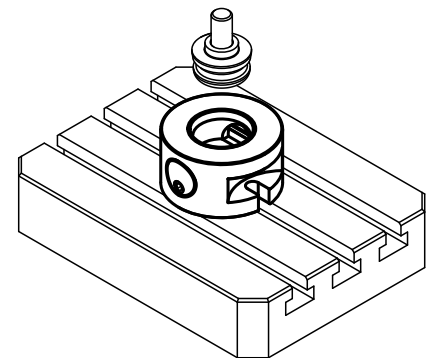
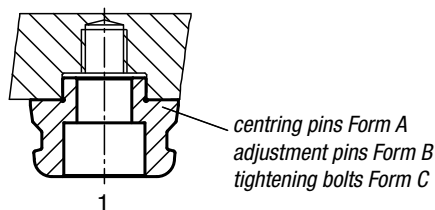
Note:
The UNILOCK clamping pins are suitable for clamping and positioning workpieces and fixtures. The clamping pins are screwed onto the exchange element.

On request:
Other versions.

- Centring pins = Form A
 - Adjustment pins = Form B
 - Tightening bolts = Form C
- from i/x and y axis (reference point)
from the free axis (support pin)
Fix with nut/washer (see centring function, clamping only)



1 = fastening with DIN 912 screw through the tightening bolt

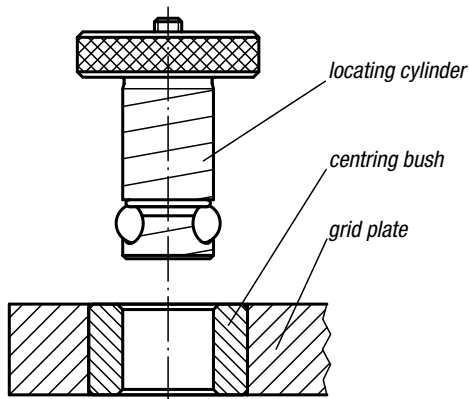


KIPP UNILOCK clamping pin, system size 138 mm

Order No.	Form	D	H
K1424.168381025	A	38	10
K1424.268381025	B	38	10
K1424.368381025	C	38	10

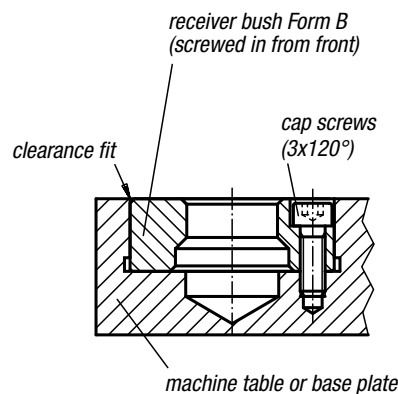
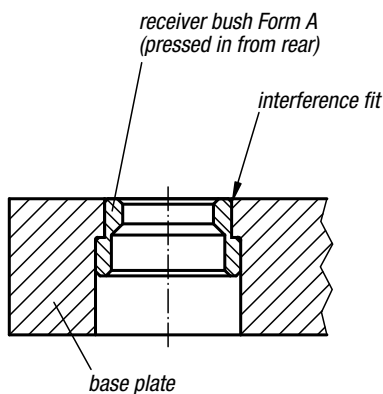
Locating and clamping systems





recommended installation

alternative installation



General information

1. With the mechanical locating and clamping system, base and tooling plates can be precisely positioned and fastening in a couple of seconds. The system consists of a locating cylinder, a centring bush and a receiver bush.
2. Three easy steps to applying the positioning and clamping system:
 Mount two receiver bushes on the machine table or on the base plate, and two centring bushes on the clamping plate.
 Insert the locating cylinder through the centring bush into the receiver bush to attain precise positioning.
 Turn the set screws in each locating cylinder roughly two rotations to clamp tight.
 Eighteen different locating cylinders, two centring bush types and two receiver bush models are available.
3. A centring bush grade I (below left) and a centring bush grade I or II (above right) should be installed in each fastening plate as far apart from one another as possible. More than two positioning points bring no further advantages.
 When more than two locating cylinders are used for additional holding force (dependent on application), holes in the fastening plate must be 0.4 mm to 0.8 mm bigger than the selected locating cylinder diameter.
4. If the centre distance between the two positioning holes in the e.g. machine table and the clamping plate is kept within a tolerance of ± 0.005 mm and two centring bushings grade I are used, a repeat accuracy within ± 0.013 mm can be achieved.
 For a somewhat lower repeat accuracy within ± 0.04 mm, one centring bushing grade I and one centring bushing grade II with a centre distance tolerance of ± 0.03 mm are used.
5. The difference between the centring bush grade I and the centring bush grade II is that the centring bush grade II has a larger internal diameter in order to correspond to the greater centre distance tolerance in the machine table or the base plate.



Locating cylinders

Ball Lock



Material:

Locating cylinder carbon steel.
Balls roller bearing steel.

Version:

Locating cylinder tempered, black oxidised.
Balls hardened, bright.

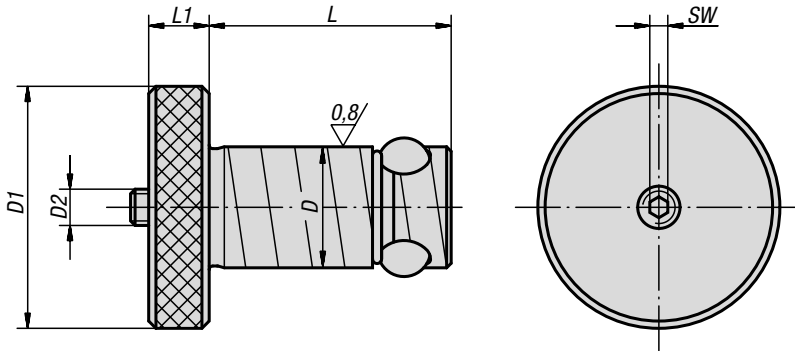
Sample order:

K0935.16020

Note:

By tightening the thrust screw (D2) the centre ball is pressed downwards and in turn forces the three locking balls outwards, where they locked in the receiver bush.

With this easy to use system machine set-up times are up to twelve times shorter than when conventional methods are used.

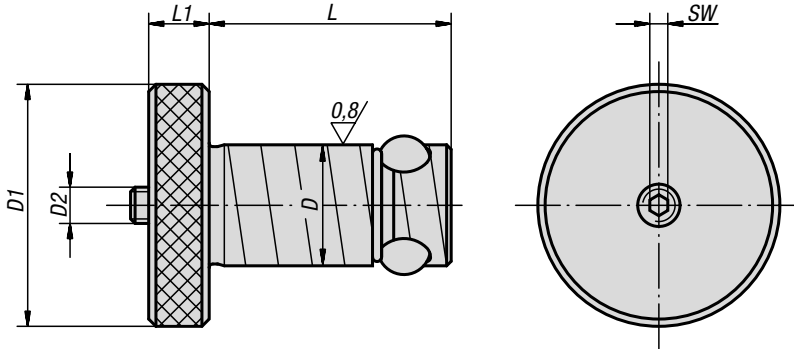


KIPP Locating cylinders Ball lock

Order No.	Grid plate thickness $\pm 0,05$	D	D1	D2	L	L1	SW	Holding force F kN	Tightening torque max. Nm	Order No. Repair Kit
K0935.13013	13	13	22	M5	27,6	6	2,5	3,3	1	K0935.913013
K0935.13020	20	13	22	M5	34,6	6	2,5	3,3	1	K0935.913020
K0935.16020	20	16	32	M6	36,5	8	3	5,3	3	K0935.916020
K0935.16025	25	16	32	M6	41,5	8	3	5,3	3	K0935.916025
K0935.20020	20	20	40	M6	39,5	10	3	13,3	4	K0935.920020
K0935.20025	25	20	40	M6	44,5	10	3	13,3	4	K0935.920025
K0935.25020	20	25	45	M8	44	10	4	30	9	K0935.925020
K0935.25025	25	25	45	M8	49	10	4	30	9	K0935.925025
K0935.30020	20	30	50	M10	49	13	5	44	15	K0935.930020
K0935.30025	25	30	50	M10	54	13	5	44	15	K0935.930025
K0935.35020	20	35	60	M12	51	13	6	68	25	K0935.935020
K0935.35025	25	35	60	M12	56	13	6	68	25	K0935.935025
K0935.35040	40	35	60	M12	71	13	6	68	25	K0935.935040
K0935.35050	50	35	60	M12	81	13	6	68	25	K0935.935050
K0935.50020	20	50	75	M20	64	20	10	88	50	K0935.950020
K0935.50025	25	50	75	M20	69	20	10	88	50	K0935.950025
K0935.50040	40	50	75	M20	84	20	10	88	50	K0935.950040
K0935.50050	50	50	75	M20	94	20	10	88	50	K0935.950050

Locating cylinders stainless steel

Ball Lock


Material:

Locating cylinder and ball stainless steel 1.4542.

Version:

Locating cylinder and ball hardened to min. 40 HRC, bright.

Sample order:

K1474.16020

Note:

By tightening the thrust screw (D2) the centre ball is pressed downwards and in turn forces the three locking balls outwards, where they locked in the receiver bush.

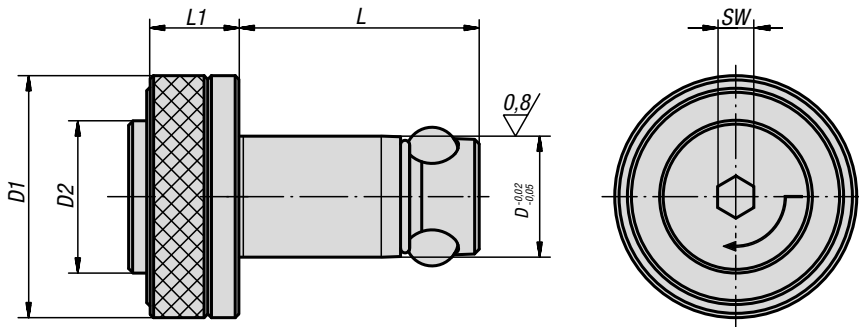
With this easy to use system machine set-up times are up to twelve times shorter than when conventional methods are used.

KIPP Locating cylinders stainless steel Ball Lock

Order No.	Grid plate thickness ± 0.13	D	D1	D2	L	L1	SW	Holding force F kN	Tightening torque max. Nm	Order No. Repair Kit
K1474.13013	13	13	22	M5	27,6	6	2,5	3,3	1,2	K1474.913013
K1474.13020	20	13	22	M5	34,6	6	2,5	3,3	1,2	K1474.913020
K1474.16020	20	16	32	M6	36,5	8	3	5,3	4,5	K1474.916020
K1474.16025	25	16	32	M6	41,5	8	3	5,3	4,5	K1474.916025
K1474.20020	20	20	40	M6	39,5	10	3	13,3	5,3	K1474.920020
K1474.20025	25	20	40	M6	44,4	10	3	13,3	5,3	K1474.920025
K1474.25020	20	25	45	M8	44	10	4	30	11	K1474.925020
K1474.25025	25	25	45	M8	49	10	4	30	11	K1474.925025
K1474.30020	20	30	50	M10	49	13	5	44	18	K1474.930020
K1474.30025	25	30	50	M10	54	13	5	44	18	K1474.930025
K1474.35020	20	35	60	M12	51	13	6	68	33	K1474.935020
K1474.35025	25	35	60	M12	56	13	6	68	33	K1474.935025
K1474.35040	40	35	60	M12	71	13	6	68	33	K1474.935040
K1474.35050	50	35	60	M12	81	13	6	68	33	K1474.935050
K1474.50020	20	50	75	M20	64	20	10	88	65	K1474.950020
K1474.50025	25	50	75	M20	69	20	10	88	65	K1474.950025
K1474.50040	40	50	75	M20	84	20	10	88	65	K1474.950040
K1474.50050	50	50	75	M20	94	20	10	88	65	K1474.950050

Locating cylinder

with quick clamping system



Material:

Locating cylinder carbon steel.
Balls roller bearing steel.

Version:

Locating cylinder tempered, black oxidised.
Balls hardened, bright.

Sample order:

K0935.112013

Note:

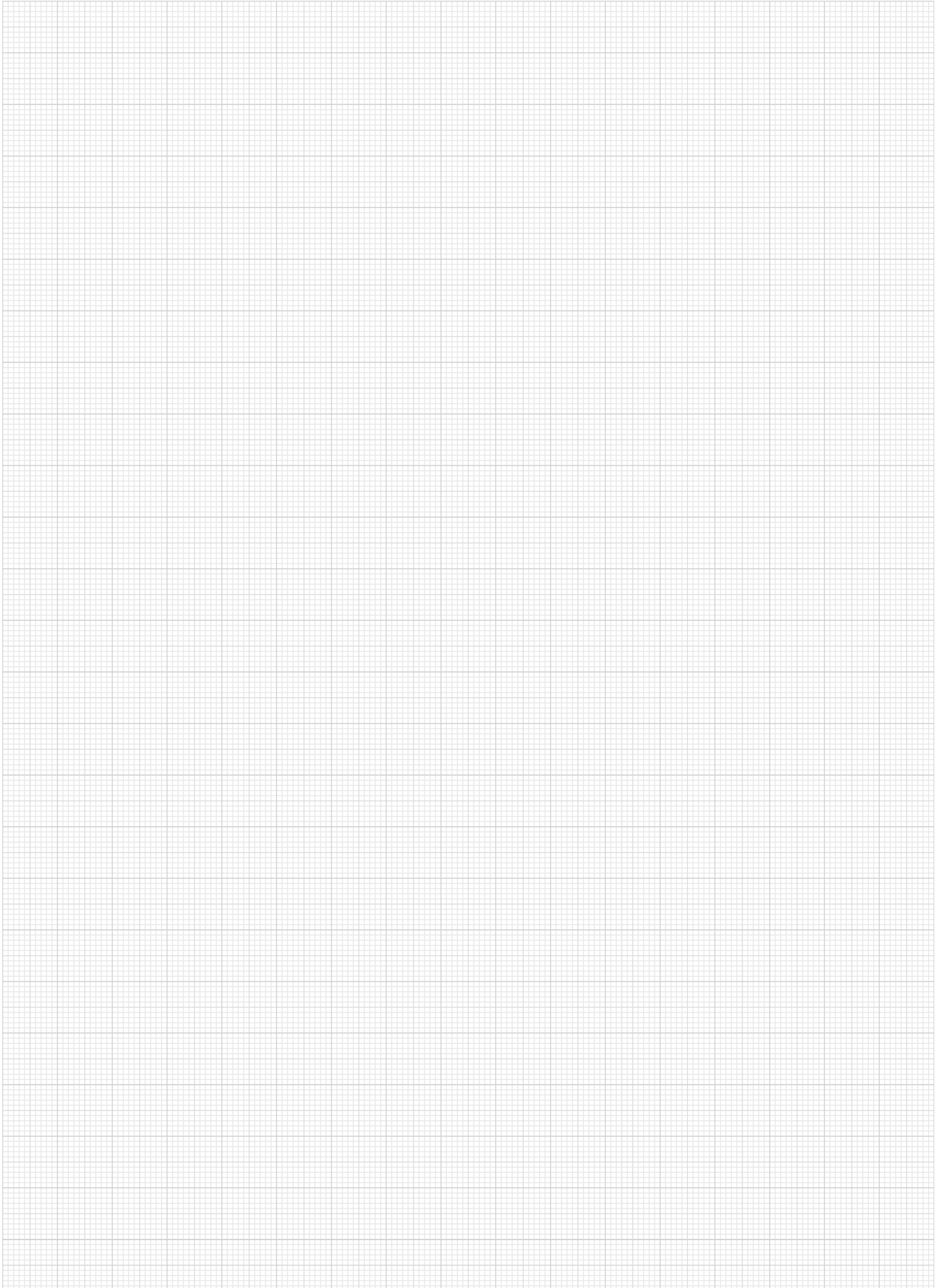
Locating cylinder with quick-clamp system for extra timesaving during setups.

Insert the locating cylinder into the receiving hole and press the button. The three balls are pushed out and position the components. By tightening the set screw a 1/4 turn using an hexagonal key, the components are positively and securely held.



KIPP Locating cylinder with quick clamping system

Order No.	Grid plate thickness ±0,05	D	D1	D2	L	L1	SW	Holding force F kN	Tightening torque max. Nm
K0935.116025	25	16	32	20	41,5	15	6	8	2
K0935.113013	13	13	25	16	27,6	12	4	4	1
K0935.116020	20	16	32	20	36,5	15	6	8	2
K0935.120020	20	20	40	25	39,5	15	6	8	2
K0935.113020	20	13	25	16	34,6	12	4	4	1
K0935.120025	25	20	40	25	44,5	15	6	8	2



Centring bushes

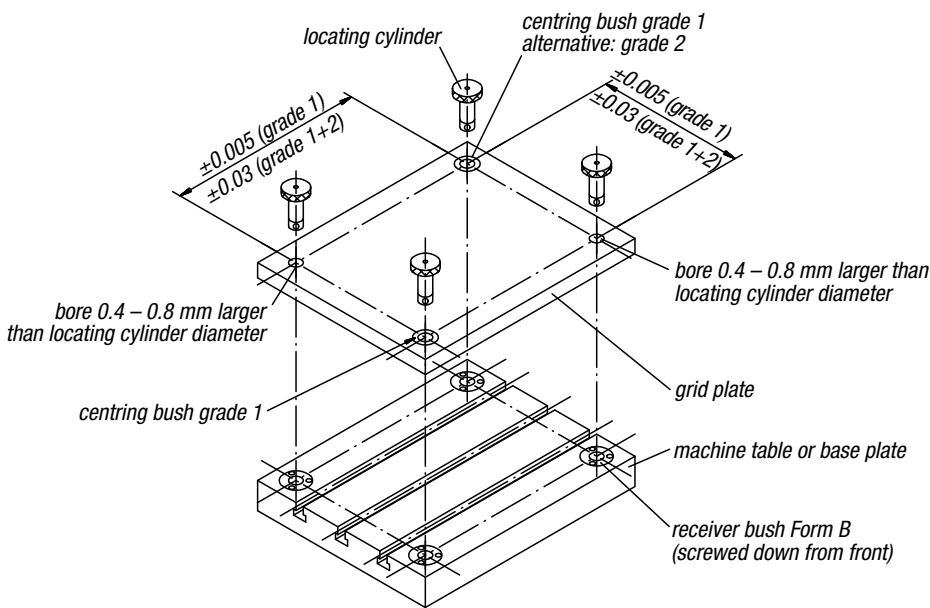
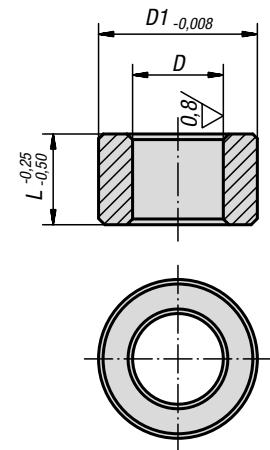


Material:
Ball bearing steel

Version:
Hardened, black oxidised.

Sample order:
K0936.113020

Note:
By a centre distance tolerance of ± 0.005 mm and two grade I centring bushes a repeat accuracy of ± 0.013 mm is possible.
By a centre distance tolerance of ± 0.03 mm and one grade I and one grade II centring bush a repeat accuracy of 0.04 mm is possible.
The centring bushes are pressed into the receiver holes of the tooling plates using a light pressure.
For further details see "General information".



KIPP Centring bushes

Order No. grade I	T=tolerance grade I	Order No. grade II	T=tolerance grade II	D	D1	L	Bore size for centring bush $\varnothing +0.01$
K0936.113013	+0,005 - +0,018	K0936.213013	+0,025 - +0,050	13	19,04	13	19,016
K0936.113020	+0,005 - +0,018	K0936.213020	+0,025 - +0,050	13	19,04	20	19,016
K0936.116020	+0,005 - +0,018	K0936.216020	+0,025 - +0,050	16	25,042	20	25,016
K0936.116025	+0,005 - +0,018	K0936.216025	+0,025 - +0,050	16	25,042	25	25,016
K0936.120020	+0,005 - +0,018	K0936.220020	+0,025 - +0,050	20	35,042	20	35,018
K0936.120025	+0,005 - +0,018	K0936.220025	+0,025 - +0,050	20	35,042	25	35,018
K0936.125020	+0,005 - +0,018	K0936.225020	+0,025 - +0,050	25	35,042	20	35,018
K0936.125025	+0,005 - +0,018	K0936.225025	+0,025 - +0,050	25	35,042	25	35,018
K0936.130020	+0,005 - +0,018	K0936.230020	+0,025 - +0,050	30	45,042	20	45,018
K0936.130025	+0,005 - +0,018	-	-	30	45,042	25	45,018
K0936.135020	+0,005 - +0,018	-	-	35	45,042	20	45,018
K0936.135025	+0,005 - +0,018	K0936.235025	+0,025 - +0,050	35	45,042	25	45,018
K0936.135040	+0,005 - +0,018	K0936.235040	+0,025 - +0,050	35	45,042	40	45,018
K0936.135050	+0,005 - +0,018	K0936.235050	+0,025 - +0,050	35	45,042	50	45,018
K0936.150020	+0,005 - +0,018	-	-	50	63,546	20	63,521
-	-	K0936.250025	+0,025 - +0,050	50	63,546	25	63,521
K0936.150040	+0,005 - +0,018	K0936.250040	+0,025 - +0,050	50	63,546	40	63,521
K0936.150050	+0,005 - +0,018	K0936.250050	+0,025 - +0,050	50	63,546	50	63,521

Centring bushes stainless steel



Material:

Stainless steel 1.4548.

Version:

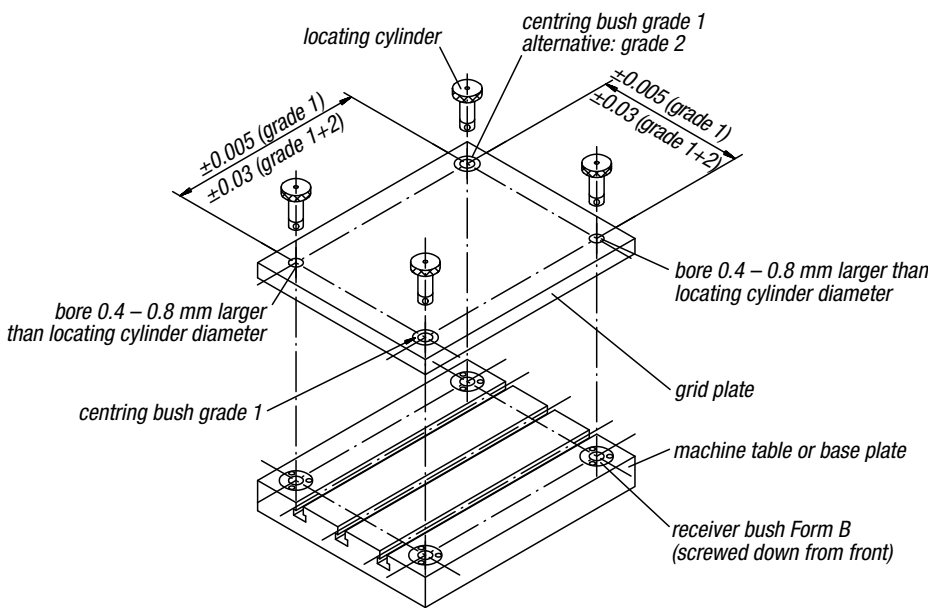
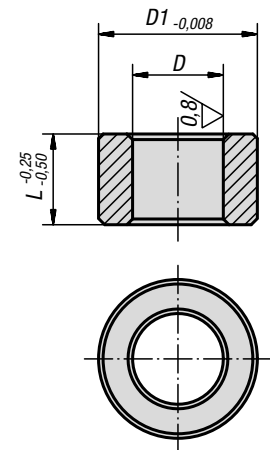
Hardened to min. 40 HRC, bright.

Sample order:

K1475.113020

Note:

By a centre distance tolerance of ± 0.005 mm and two grade I centring bushes a repeat accuracy of ± 0.013 mm is possible.
 By a centre distance tolerance of ± 0.03 mm and one grade I and one grade II centring bush a repeat accuracy of 0.04 mm is possible.
 The centring bushes are pressed into the receiver holes of the tooling plates using a light pressure.
 For further details see "General information".



KIPP Centring bushes stainless steel

Order No. grade I	T=tolerance grade I	Order No. grade II	T=tolerance grade II	D	D1	L	Bore size for centring bush Ø +0.01
K1475.113013	+0,005 - +0,018	K1475.213013	+0,025 - +0,050	13	19,04	13	19,016
K1475.113020	+0,005 - +0,018	K1475.213020	+0,025 - +0,050	13	19,04	20	19,016
K1475.116020	+0,005 - +0,018	K1475.216020	+0,025 - +0,050	16	25,042	20	25,016
K1475.116025	+0,005 - +0,018	K1475.216025	+0,025 - +0,050	16	25,042	25	25,016
K1475.120020	+0,005 - +0,018	K1475.220020	+0,025 - +0,050	20	35,042	20	35,018
K1475.120025	+0,005 - +0,018	K1475.220025	+0,025 - +0,050	20	35,042	25	35,018
K1475.125020	+0,005 - +0,018	K1475.225020	+0,025 - +0,050	25	35,042	20	35,018
K1475.125025	+0,005 - +0,018	K1475.225025	+0,025 - +0,050	25	35,042	25	35,018
K1475.130020	+0,005 - +0,018	K1475.230020	+0,025 - +0,050	30	45,042	20	45,018
K1475.130025	+0,005 - +0,018	K1475.230025	+0,025 - +0,050	30	45,042	25	45,018
K1475.135020	+0,005 - +0,018	K1475.235020	+0,025 - +0,050	35	45,042	20	45,018
K1475.135025	+0,005 - +0,018	K1475.235025	+0,025 - +0,050	35	45,042	25	45,018
K1475.135040	+0,005 - +0,018	K1475.235040	+0,025 - +0,050	35	45,042	40	45,018
K1475.135050	+0,005 - +0,018	K1475.235050	+0,025 - +0,050	35	45,042	50	45,018
K1475.150020	+0,005 - +0,018	K1475.250020	+0,025 - +0,050	50	63,546	20	63,521
K1475.150025	+0,005 - +0,018	K1475.250025	+0,025 - +0,050	50	63,546	25	63,521
K1475.150040	+0,005 - +0,018	K1475.250040	+0,025 - +0,050	50	63,546	40	63,521
K1475.150050	+0,005 - +0,018	K1475.250050	+0,025 - +0,050	50	63,546	50	63,521



Locating bushes

Form A (pressed in from rear)

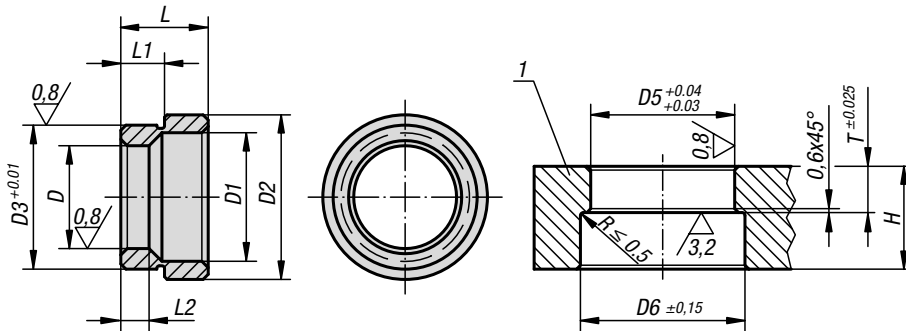


Material:
Carbon steel.

Version:
Tempered and black oxidised.

Sample order:
K0937.20

Drawing reference:
1) grid plate



KIPP Locating bushes Form A (pressed in from rear)

Order No.	D	D1	D2	D3	L	L1	L2	D5	D6	T	Min. grid plate thickness H
K0937.13	13	17,3	25	20,03	12,1	6,6	5,58	20	26	6,92	20
K0937.16	16	20,7	28,6	22,03	12,1	6,9	6,6	22	29	7,24	20
K0937.20	20	24,8	32,2	28,03	17,1	8,42	8,13	28	33	8,74	25
K0937.25	25	30,4	40,2	35,03	21	10,22	10,16	35	41	10,54	25
K0937.30	30	36,2	48,2	42,03	21,8	10,63	11,18	42	49	10,95	30
K0937.35	35	41,3	54,2	48,03	25,1	12,18	14,78	48	55	12,5	32
K0937.50	50	58,4	75,2	67,03	31,1	15,43	18,67	67	76	15,75	45

K1476

Locating bushes, stainless steel

Form A (pressed in from rear)

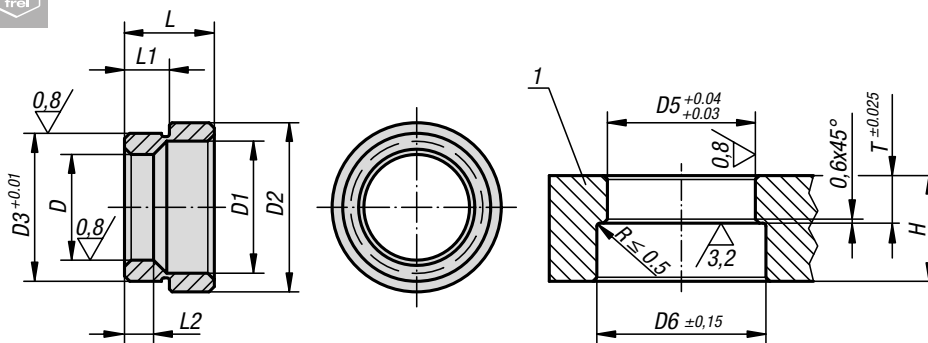


Material:
Stainless steel 1.4548.

Version:
Hardened to min. 40 HRC, bright.

Sample order:
K1476.20

Drawing reference:
1) grid plate

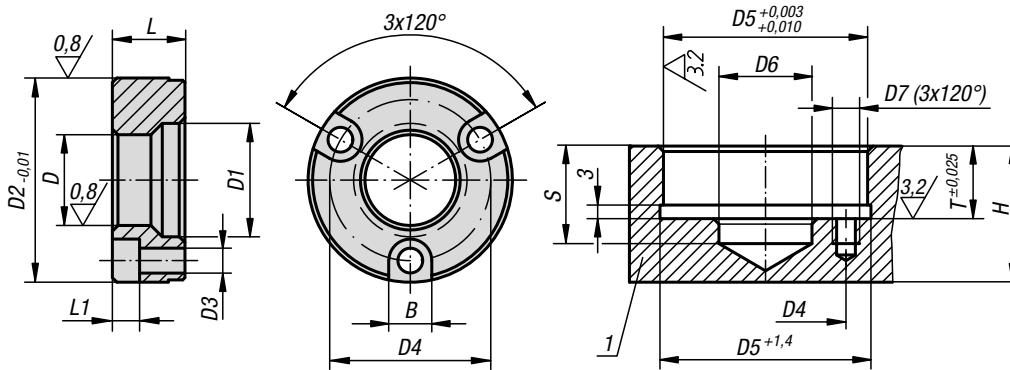


KIPP Locating bushes stainless steel Form A (pressed in from rear)

Order No.	D	D1	D2	D3	L	L1	L2	D5	D6	T	Min. grid plate thickness H
K1476.13	13	17,3	25	20,03	12,1	6,6	5,58	20	26	6,92	20
K1476.16	16	20,7	28,6	22,03	12,1	6,9	6,6	22	29	7,24	20
K1476.20	20	24,8	32,2	28,03	17,1	8,42	8,13	28	33	8,74	25
K1476.25	25	30,4	40,2	35,03	21	10,22	10,16	35	41	10,54	25
K1476.30	30	36,2	48,2	42,03	21,8	10,63	11,18	42	49	10,95	30
K1476.35	35	41,3	54,2	48,03	25,1	12,18	14,78	48	55	12,5	32
K1476.50	50	58,4	75,2	67,03	31,1	15,43	18,67	67	76	15,75	45

Locating bushes

Form B (screwed down from front)



Material:
Carbon steel.

Version:
Tempered and black oxidised.

Sample order:
K0938.13

Note:
Fastening screws included.

Drawing reference:
1) grid plate

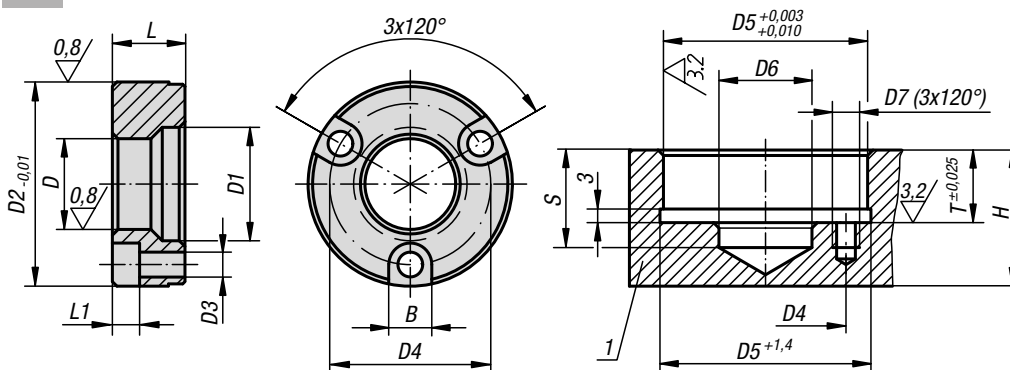
KIPP Locating bushes Form B (screwed down from front)

Order No.	D	D1	D2	D3	D4	L	L1	B	D5	D6	D7	S	T	Min. grid plate thickness H
K0938.13	13	17,3	34,99	4,4	25	11,56	4,5	7,6	35	13,5	M4x7	20	11,91	20
K0938.16	16	20,7	36,99	4,4	29	11,56	4,5	7,6	37	21	M4x7	20	11,91	20
K0938.20	20	24,8	44,99	5,4	35	15,82	6	9,5	45	21	M5x9	25	16,21	25
K0938.25	25	30,4	54,99	6,4	42	19,94	7	11	55	25,5	M6x10	25	20,32	25
K0938.30	30	36,2	59,99	6,4	48	21,77	7	11	60	30,5	M6x11	30	22,15	30
K0938.35	35	41,3	69,99	8,4	56	22,61	9	14	70	40	M8x17	32	22,99	32
K0938.50	50	58,4	91,99	10,4	75	31,12	11	17	92	55	M10x18	45	31,5	45

K1477

Locating bushes, stainless steel

Form B (screwed down from front)



Material:
Stainless steel 1.4548.

Version:
Hardened to min. 40 HRC, bright.

Sample order:
K1477.13

Note:
Fastening screws included.

Drawing reference:
1) grid plate

KIPP Receiver bushes stainless steel Form B (screwed down from front)

Order No.	D	D1	D2	D3	D4	L	L1	B	D5	D6	D7	S	T	Min. grid plate thickness H
K1477.13	13	17,3	34,99	4,4	25	11,56	4,5	7,6	35	13,5	M4x7	20	11,91	20
K1477.16	16	20,7	36,99	4,4	29	11,56	4,5	7,6	37	21	M4x7	20	11,91	20
K1477.20	20	24,8	44,99	5,4	35	15,82	6	9,5	45	21	M5x9	25	16,21	25
K1477.25	25	30,4	54,99	6,4	42	19,94	7	11	55	25,5	M6x10	25	20,32	25
K1477.30	30	36,2	59,99	6,4	48	21,77	7	11	60	30,5	M6x11	30	22,15	30
K1477.35	35	41,3	69,99	8,4	56	22,61	9	14	70	40	M8x17	32	22,99	32
K1477.50	50	58,4	91,99	10,4	75	31,12	11	17	92	55	M10x18	45	31,5	45

Locating cylinder with wedge clamp system



Material:

Carbon steel.

Version:

Black oxidised.

Sample order:

K1802.1625

Note:

A workpiece can be easily secured and centred in a bore using the locating cylinder.

Due to the low surface friction on rigid contact faces generated by the integrated axial needle bearing, increased clamping forces can be achieved.

The high load rating of the bearing guarantees a long service life.

Clamping cylinder with pull-down effect.

Assembly:

Insert the locating cylinder through the mounting hole in the workpiece being secured.

Tighten the screw first by hand using the knurled part of the screw and then tighten further using a suitable spanner.

The knurled part can also be sunk into a counterbore provided for this purpose.

Advantages:

Easily adjustable clamping range

Independent of the bores diameter and surface finish (up to H12)

Pull-down effect

Significant increase in clamping force for same tightening torque, in comparison with the version with balls

High-quality axial needle bearing with high load rating and long service life

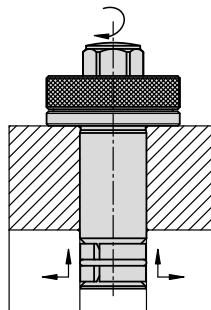
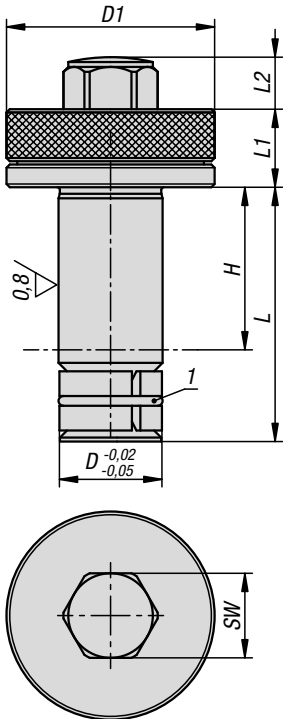
Applications:

Ideal for fastening standard elements of various thicknesses. The clamping cylinder can also be used for quick-change systems.

Drawing reference:

The dimension H refers to the clamping area.

1) O-ring



KIPP Locating cylinder with wedge clamp system

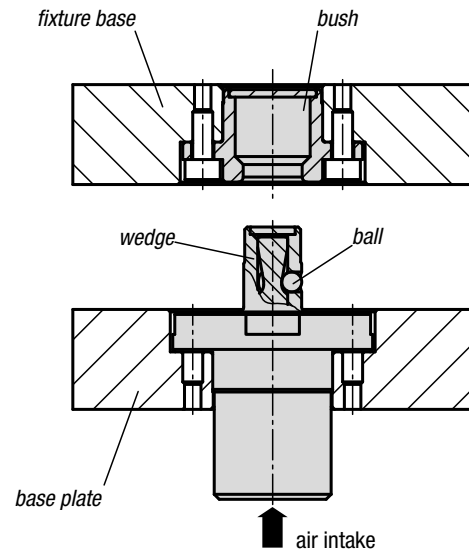
Order No.	D	D1	H clamping range	L	L1	L2	SW	Holding force F kN	Tightening torque Nm	Order No. Repair Kit
K1802.1010	10	20	0-10	20	8	5	8	5,4	4,4	K1802.91010
K1802.1215	12	26	0-15	27	10	6	10	8,8	10,5	K1802.91215
K1802.1625	16	32	0-25	39	12	8	13	16,8	22	K1802.91625
K1802.2030	20	38	0-30	49,5	15	9	17	22,6	31	K1802.92030

Pneumatic positioning and clamping system

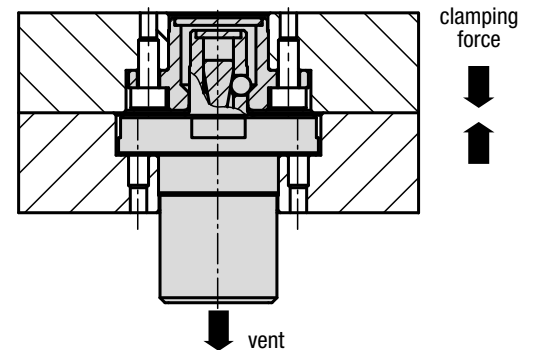
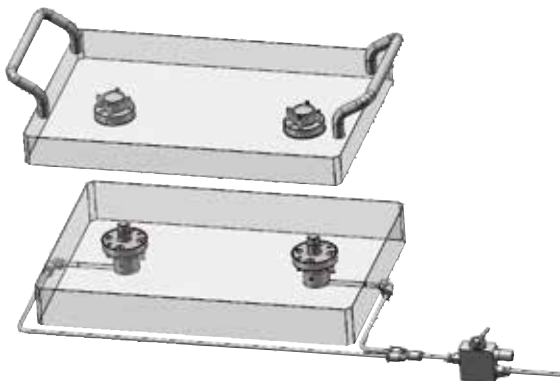


General information

1. The pneumatic positioning and clamping system enables rapid and precise fixation and positioning of grid plates. The system consists of a locating cylinder and a locating bush.
2. The locating cylinder is actuated pneumatically.
3. To use the positioning and clamping system, follow these three simple steps: Install two locating cylinders on the machine table or baseplate. At the same time install the locating bushes with the interchangeable subplates in line with the specified dimensions. Feed in air to open the locating cylinder mechanism to make the clamping balls move inwards. Insert the interchangeable subplate with the locating bushes and close the air valve again. The interchangeable subplate is now positioned and clamped.
4. The system is clamped without an air supply. Spring force is used for clamping in the locating cylinder. An air supply of 6 bar is required to open the mechanism.
5. 2 different installation variants are available.



Applications



Locating cylinders

pneumatic



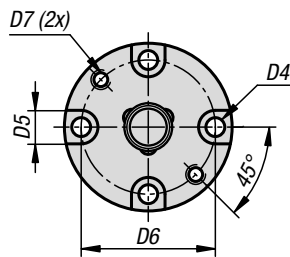
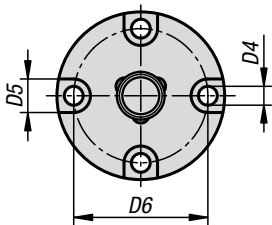
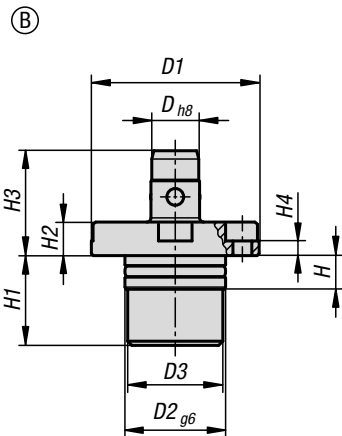
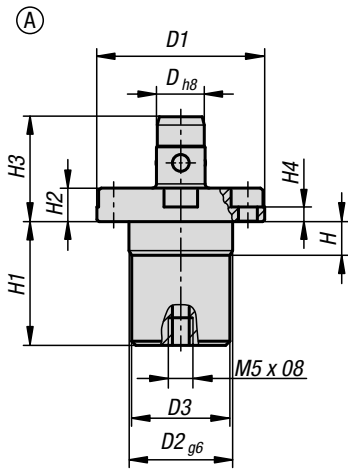
Material:
Carbon steel.

Version:
nickel-plated.

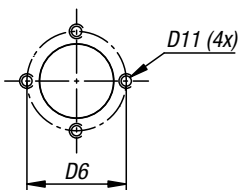
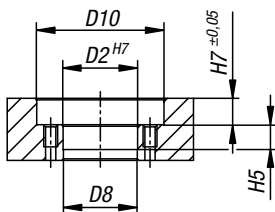
Sample order:
K1219.112

Note:

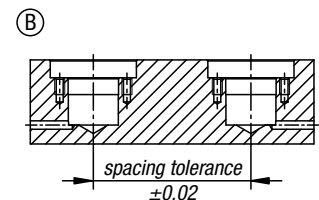
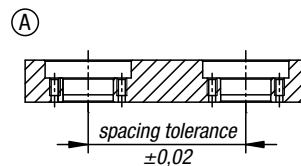
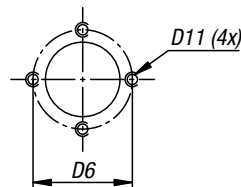
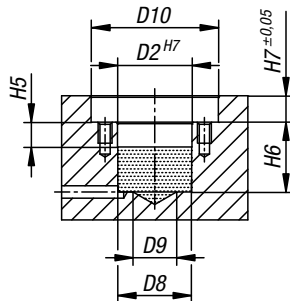
The 3 clamping balls are pneumatically released. The 3 clamping balls retract and the fixture can be exchanged. If the air is stopped, the 3 clamping balls advance and the fixture is clamped. This easy-to-operate system significantly reduces the changeover times.



mounting instructions:



mounting instructions:

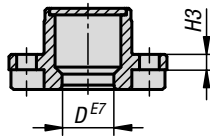
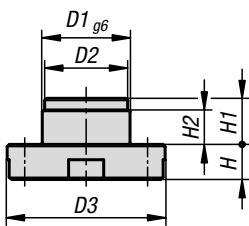
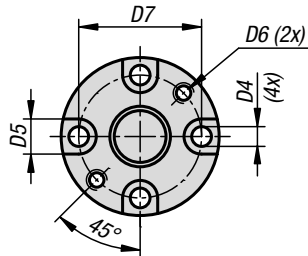


KIPP Locating cylinders pneumatic

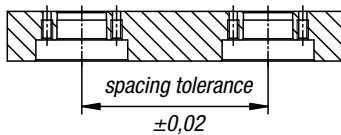
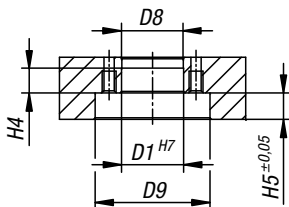
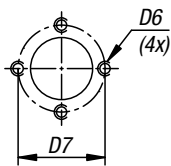
Order No.	Form	D	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	H	H1	H2	H3	H4	H5	H6	H7	Retaining force F1 N
K1219.112	A	12	40	24	23,4	4,5	8	32	-	23,8	-	41	M4	8	29,5	8	25	3,5	8,5	-	8,5	250
K1219.116	A	16	51	32	31,4	5,5	9,5	41	-	31,8	-	52	M5	8,5	31,7	9,5	28,5	4	9	-	10	350
K1219.212	B	12	40	24	23,4	4,5	8	32	M4	23,8	14	41	M4	8	24,5	8	25	3,5	8,5	25,5	8,5	250
K1219.216	B	16	51	32	31,4	5,5	9,5	41	M5	31,8	20	52	M5	8,5	25,5	9,5	28,5	4	9	26,5	10	350

Locating bushes

for pneumatic locating cylinder



mounting instructions:



Material:
Carbon steel.

Version:
nickel-plated.

Sample order:
K1220.12

Note:
Locating bushes are placed in a fixture or interchangeable subplate and form the counterpart to the locating cylinder.
The locating bushes are centred in a reamed hole and then fastened with 4 screws.
The balls of the locating cylinder engage in the groove in the locating bush, thereby forming a fast, secure and highly accurate changeover unit, and reducing setup and changeover times.



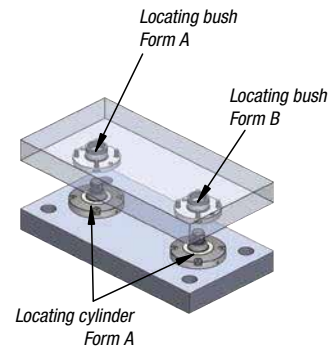
KIPP Locating bushes for pneumatic locating cylinder

Order No.	D	D1	D2	D3	D4	D5	D6	D7	D8	D9	H	H1	H2	H3	H4	H5
K1220.12	12,1	20	19,6	36	4,5	8	M4	28	19,8	37	8	10,5	7,5	3,5	8	8,5
K1220.16	16,1	25	24,6	44	5,5	9,5	M5	34	24,8	45	9,5	11	7	4	7,5	10

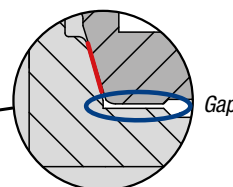
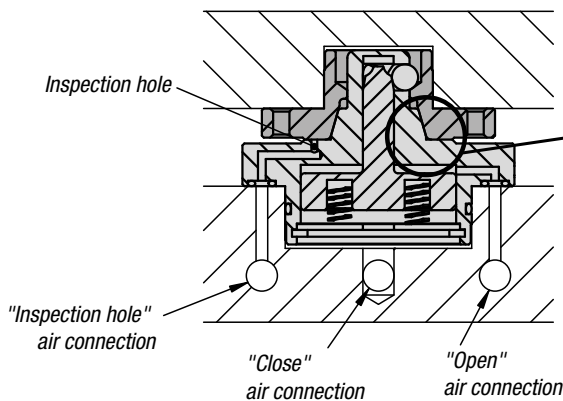
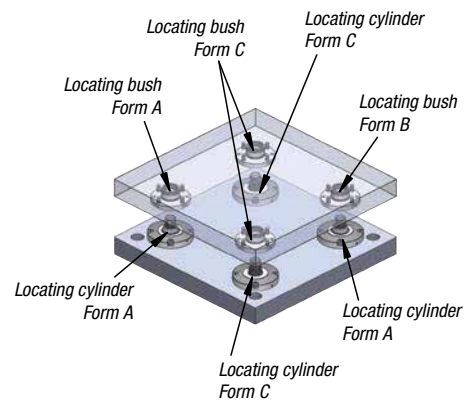
General information

1. The pneumatic positioning and clamping system enables rapid and precise positioning and fastening of tooling and base plates. The system consists of a locating cylinder and locating bush.
2. The locating cylinders are actuated pneumatically.
3. The positioning and clamping system is made ready for use in three easy steps:
Install two (or 4) locating cylinders on the machine table or baseplate. Likewise, the locating bushes with the interchangeable subplates are installed according to the specified dimensions.
To release the locating cylinder mechanism, blow compressed air into the opening circuit. This makes the clamping balls move inwards. Insert the interchangeable subplate with the locating bushes and actuate the air valve for the closing circuit. The open port should now be switched off. The interchangeable subplate is now positioned and clamped.
To open the mechanism, an air connection of at least 4.5 bar is required.
4. When clamped, compressed air must remain connected to the „close“ port. The air valve remains opened.
If the air supply fails, the locating cylinder still clamps using the reduced force of the clamping springs.
5. There are 2 system sizes to choose from.

Application example for 2x clamping station:

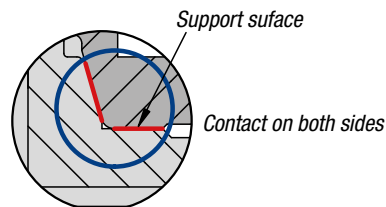


Application example for 4x clamping station:



Tension-free state:

Contact between Form A locating cylinder (cone) and Form A locating bush.
Gap in the contact face.



Clamped state:

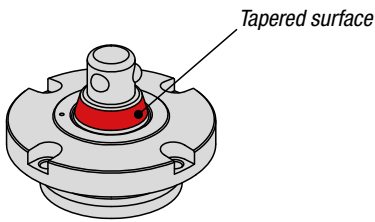
Cone surfaces and contact faces have contact.

- If the air supply fails, the wedge mechanism and the springs of the locating cylinder prevent a sudden reduction of the clamping force.
- Clamping force of the locating cylinder when no air is connected (spring clamping force only):
 - D1 = 70 ... 1.2 kN
 - D1 = 85 ... 1.8 kN
- The air connection for support control is used to check if the locating bush lies correctly on the locating cylinder.
- Repeat accuracy 3 µm.

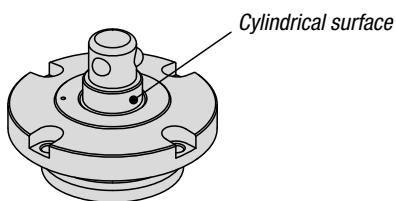
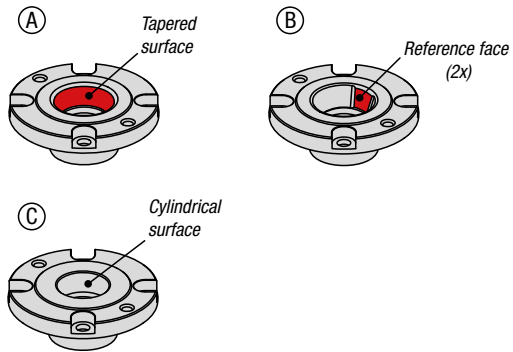
Pneumatic positioning and clamping system



Function:

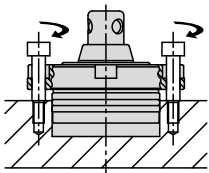


Positioning via tapered Form A locating cylinder

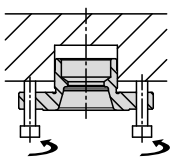


Clamping with cylindrical Form C locating cylinder

Disassembly of the locating cylinders:

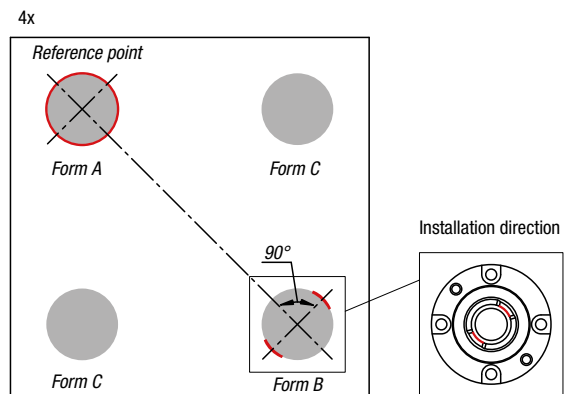
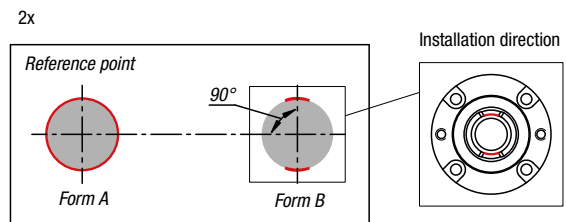


Disassembly of the locating bushes:



Arrangement of the locating bushes:

Mount the Form A locating bush (centring) and the Form B locating bush (compensation) as in the following illustrations. Observe the installation angle of the Form B locating bush (compensation), as this differs for a 2x station and a 4x station.



Locating cylinders

pneumatic



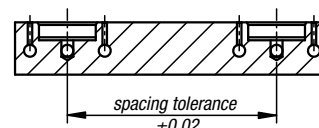
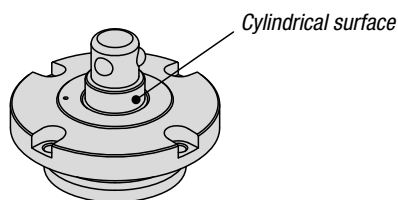
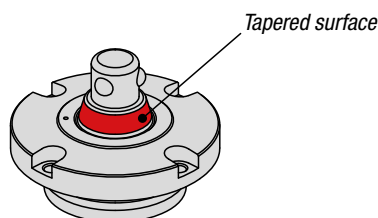
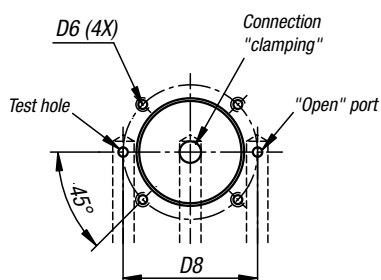
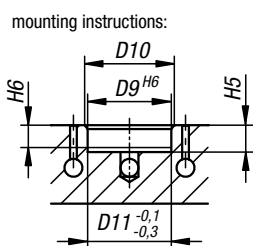
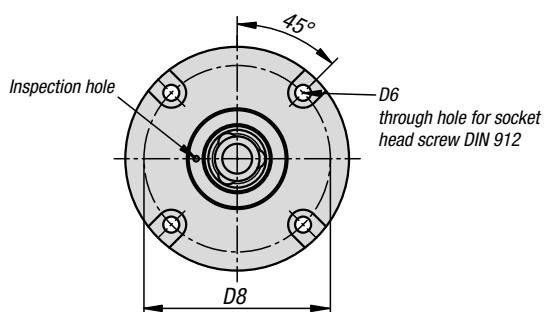
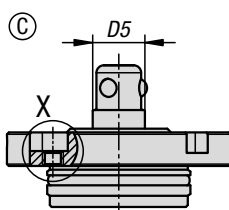
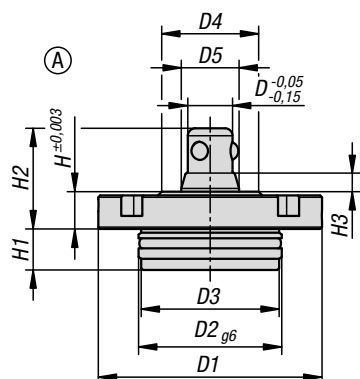
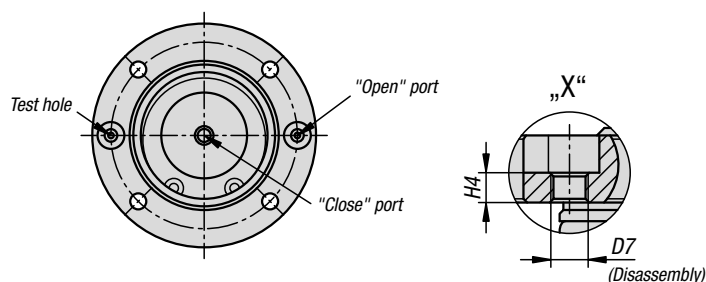
Material:
Housing and clamping cylinder, carbon steel.
Balls, stainless steel 1.0503.

Version:
Housing hardened and black oxidised.
Contact faces ground.

Sample order:
K1486.11670

Note:
This positioning and clamping system is especially suitable for installation in fixtures (plates, clamping tower blocks, etc.) in all mounting positions. The modular design allows the number of and distance between the locating cylinders to be ideally adjusted to suit the clamping task. Due to the small diameters, the spacing between the locating cylinders can also be reduced.

The 3 clamping balls are mechanically released through control of the locating cylinder with the „opening“ connection. The 3 clamping balls move inward and the fixture can be changed quickly. For clamping, the air is taken from the „opening“ connection and the „clamping“ connection then receives air on the locating cylinder. The 3 clamping balls are mechanically driven outward again and the new fixture is clamped. To achieve optimal retaining force, the locating cylinder remains connected to the air.



KIPP Locating cylinders pneumatic

Order No.	Version 2	Form	D	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	H	H1	H2	H3	H4	H5	H6	Retaining force F1 N
K1486.11670	conical	A	16	70	48	47,5	38	24,5	M5	M6	60	48	50	48	12	15	35	8	5	16	12	4000
K1486.31670	cylindrical	C	16	70	48	47,5	38	20	M5	M6	60	48	50	48	12	15	35	8	5	16	12	4000
K1486.12085	conical	A	20	85	58	57,5	48	31,5	M6	M8	72	58	60	58	15	19	44	10	6	20	16	6300
K1486.32085	cylindrical	C	20	85	58	57,5	48	26	M6	M8	72	58	60	58	15	19	44	10	6	20	16	6300

Locating bushes

for pneumatic locating cylinder



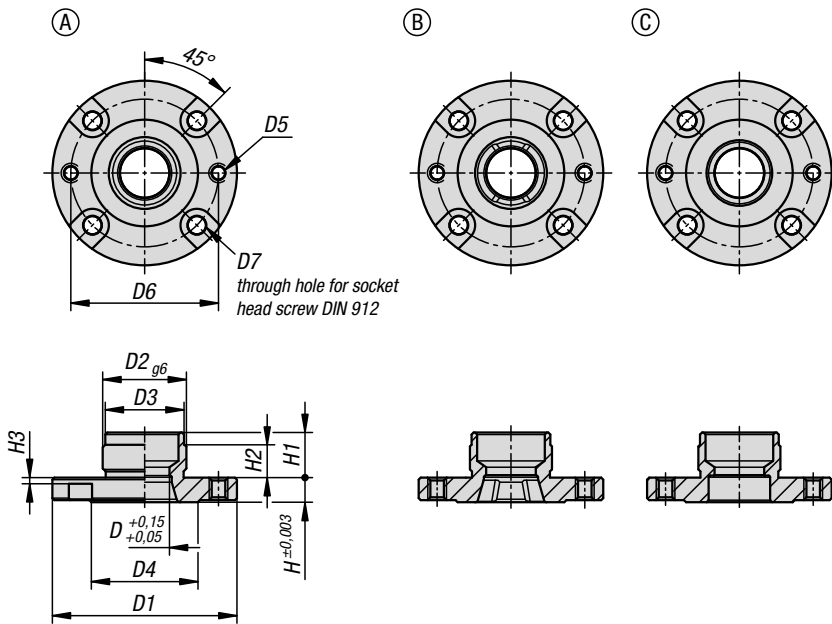
Material:
Carbon steel.

Version:
Housing hardened and black oxidised.
Contact faces ground.

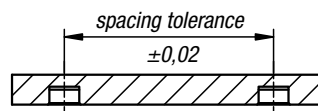
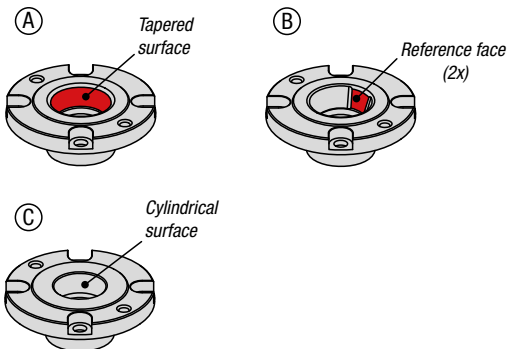
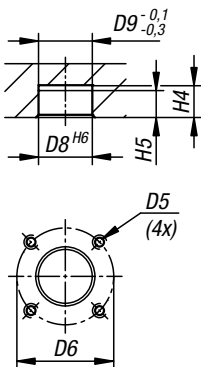
Sample order:
K1487.11660

Note:
Locating bushes are placed in a fixture or interchangeable subplate and form the counterpart to the locating cylinder.
The locating bushes are centred in a reamed hole and then fastened with 4 screws.
The balls of the locating cylinder engage in the groove in the locating bush, thereby forming a fast, secure and highly accurate changeover unit, and reducing setup and changeover times.

Attention:
Please observe installation notes of the locating bushes.



mounting instructions:

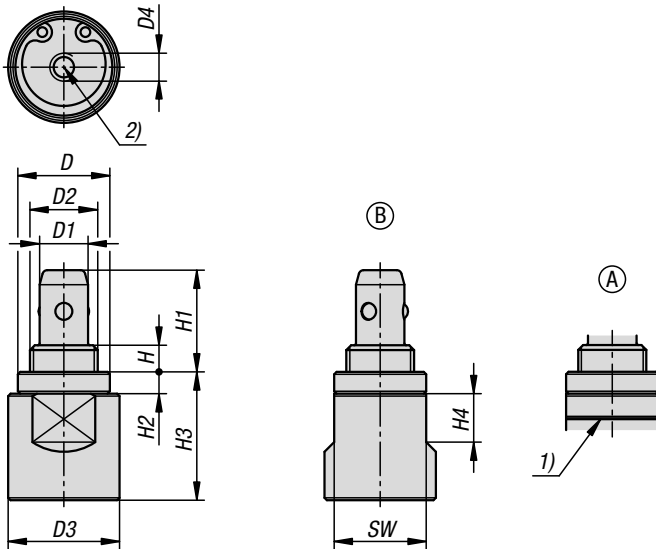


KIPP Locating bushes for pneumatic locating cylinder

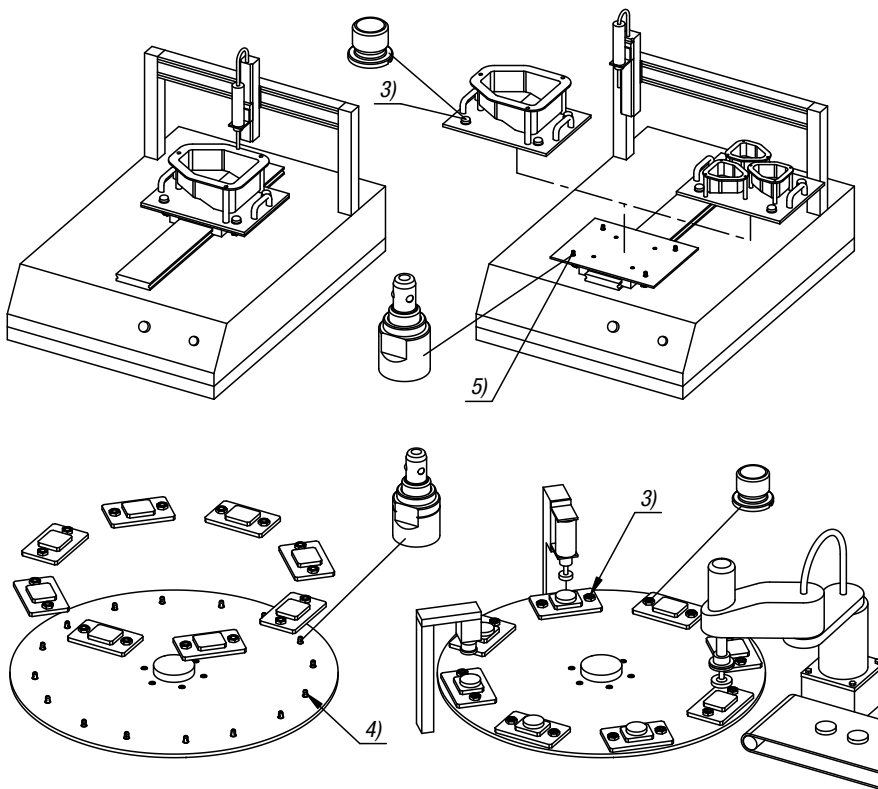
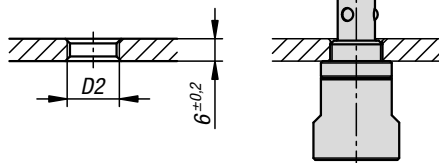
Order No. Form A	Order No. Form B	Order No. Form C	D	D1	D2	D3	D4	D5	D6	D7	D8	D9	H	H1	H2	H3	H4	H5
K1487.11660	K1487.21660	K1487.31660	16	60	28	27,5	38	M5	50	M5	28	28	8	15	10	2,5	16	12
K1487.12075	K1487.22075	K1487.32075	20	75	36	35,5	48	M6	62	M6	36	36	10	19	14	3,5	20	16

Locating cylinders stainless steel

pneumatic



mounting instructions:



By locating cylinder Form A, the clamping balls are pushed out by a spring. Compressed air is used to retract the balls.

By locating cylinder Form B, the clamping balls are initially retracted. Compressed air pushes the balls out.

Material:

Body, stainless steel.
Seal, NBR.

Version:

Stainless steel bright.

Sample order:

K1738.10140

Note for ordering:

Form A is marked with a groove.

Note:

The stated clamping and retaining forces are related to an operating pressure of 0.5 Mpa. When using several positioning units, the distance tolerance of ± 0.1 mm should not be exceeded. Repeat accuracy ± 0.2 mm.

Assembly:

Installation dimensions are for a 6 mm thick plate.

Accessories:

K1739 locating bushes stainless steel.

Drawing reference:

- 1) Form A ID groove
- 2) Pneumatic connection
- 3) Locating bush for locating cylinder
- 4) Form A locating cylinder
- 5) Form B locating cylinder

KIPP Locating cylinders stainless steel, pneumatic

Order No.	Form	Form-Type	D	D1	D2	D3	D4	H	H1	H2	H3	H4	SW	Operating pressure MPa	F N	Holding force N
K1738.10140	A	spring-loaded	19	10	M14x1	23	M5	5,5	21	4,5	26,5	10	19	0,3 - 0,7	50	150
K1738.10141	B	Clamped pneumatically	19	10	M14x1	23	M5	5,5	21	4,5	26,5	10	19	0,3 - 0,7	150	300

Locating bushes stainless steel

for locating cylinders, pneumatic



Material:
Stainless steel

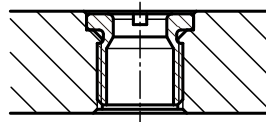
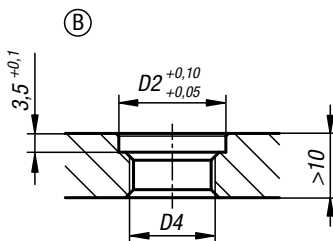
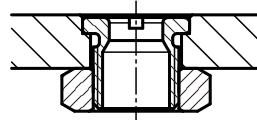
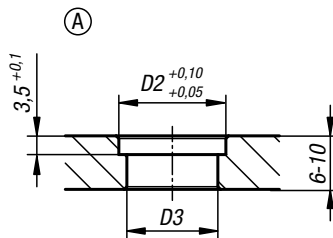
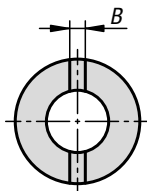
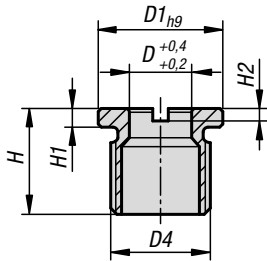
Version:
Hardened.

Sample order:
K1739.101

Note:
Mounting dimensions Form A:
Mounting with nut, max. plate thickness 10 mm.
Mounting dimensions Form B:
Screwed in, for plate thicknesses over 10 mm or in a blind hole.
Colour may differ from the image due to the hardening process.

On request:
Suitable nuts and assembly tool.

Accessories:
K1738 Locating cylinder stainless steel, pneumatic



KIPP Locating bushes stainless steel for locating cylinders, pneumatic

Order No.	B	D	D1	D2	D3	D4	H	H1	H2
K1739.101	2,5	10	20	20	17	M16x1,5	17	3	2

Locating adapters, cylindrical, stainless steel

pneumatic



**Clamped using compressed air.
Released via integrate spring.**

Material:

Body, stainless steel.
Seal, NBR.

Version:

Stainless steel bright.

Sample order:

K1740.0618

Note:

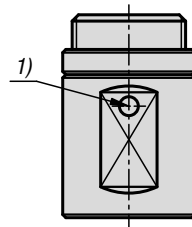
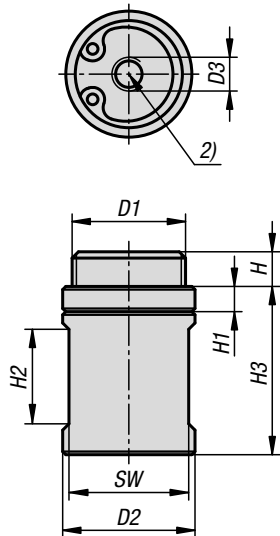
Installed dimensions for plate thickness 6 mm.
The stated clamping and retaining forces are related to an operating pressure of 0.5 Mpa.
When using several positioning units, the distance tolerance of ± 0.1 mm should not be exceeded.
Repeat accuracy ± 0.2 mm.

Accessories:

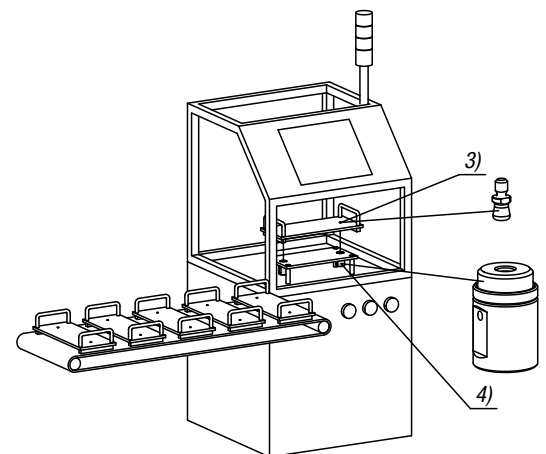
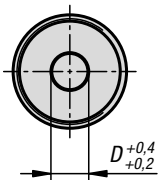
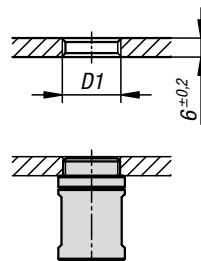
Clamping pins K1564.

Drawing reference:

- 1) Air valve (one-sided)
- 2) Pneumatic connection
- 3) Clamping pin
- 4) Locating adapter



mounting instructions:

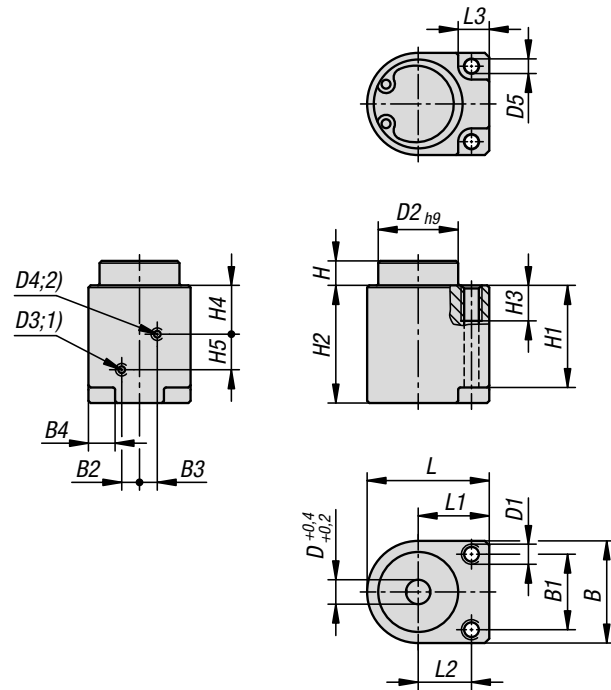


KIPP Locating adapters, cylindrical, stainless steel, pneumatic

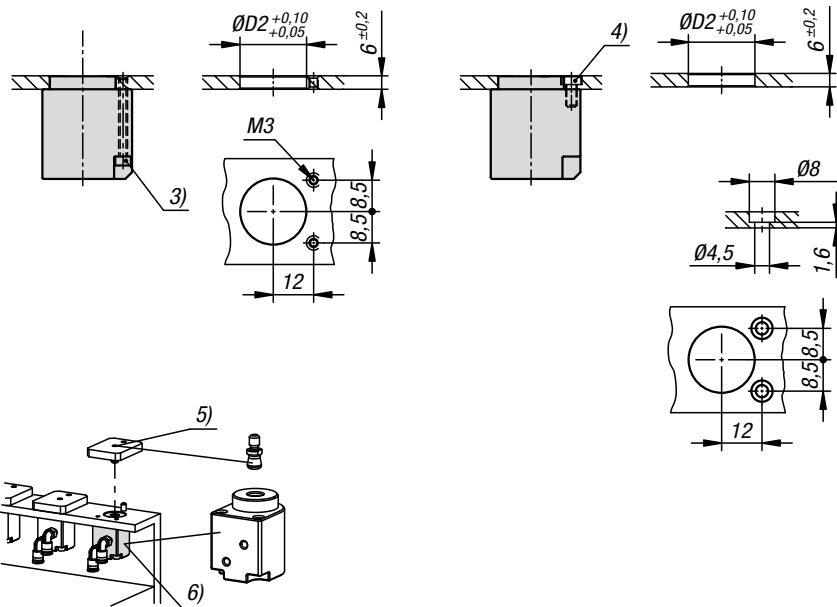
Order No.	D	D1	D2	D3	H	H1	H2	H3	SW	Operating pressure MPa	F N	Holding force N
K1740.0618	6	M18x1	21	M5	5,5	4	15	26,7	19	0,3 - 0,7	30	75

Locating adapters, flange, stainless steel

pneumatic



mounting instructions:



Clamped using compressed air. If the pressure fails, tension is retained by a spring. A spring force of 6 N must be overcome to release the positioning adapters using compressed air.

Material:
Body, stainless steel.
Seal, NBR.

Version:
Stainless steel bright.

Sample order:
K1741.0618

Note for ordering:
M3x28 cap screws for fastening from below are supplied.
M4 cap screws for fastening from above are not supplied.

Note:
Installed dimensions for plate thickness 6 mm.
The stated clamping and retaining forces are related to an operating pressure of 0.5 Mpa.
When using several positioning units, the distance tolerance of ±0.1 mm should not be exceeded.
Repeat accuracy ±0.2 mm.

Accessories:
Clamping pins K1564.

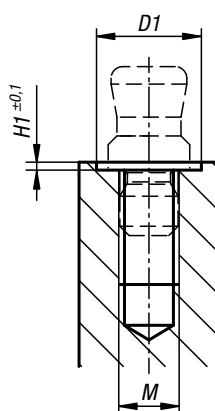
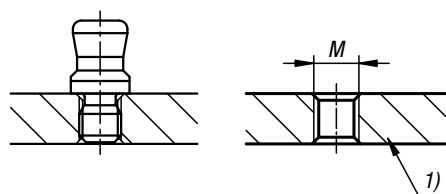
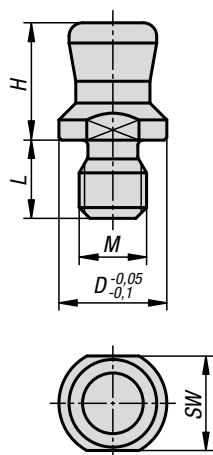
Drawing reference:
1) „Clamping“ connection
2) „Release“ connection
3) M3 cap screw
4) M4 cap screw
5) Clamping pin
6) Locating fixture

KIPP Locating adapters, flange, stainless steel, pneumatic

Order No.	B	B1	B2	B3	B4	D	D1	D2	D3	D4	D5	H	H1	H2
K1741.0618	23	17	4	4	6	6	M4	18	M3	M3	3,3	5,5	23	26,5

Order No.	H3	H4	H5	L	L1	L2	L3	Operating pressure MPa	F=clamping force N (Pneu. clamped)	F1=Retaining force N (spring-loaded)	Holding force N
K1741.0618	8	11	8	27,5	16	12	7	0,3 - 0,7	40	6	100

Clamping pins stainless steel



Material:
Stainless steel

Version:
Hardened.

Sample order:
K1564.16

Note:
Colour may differ from image due to curing process.

Method of operation:
Screw the clamping pin into the thread and tighten.
See assembly drawing.

Accessories:
Locating fixture round K1740.
Locating fixture flange K1741.

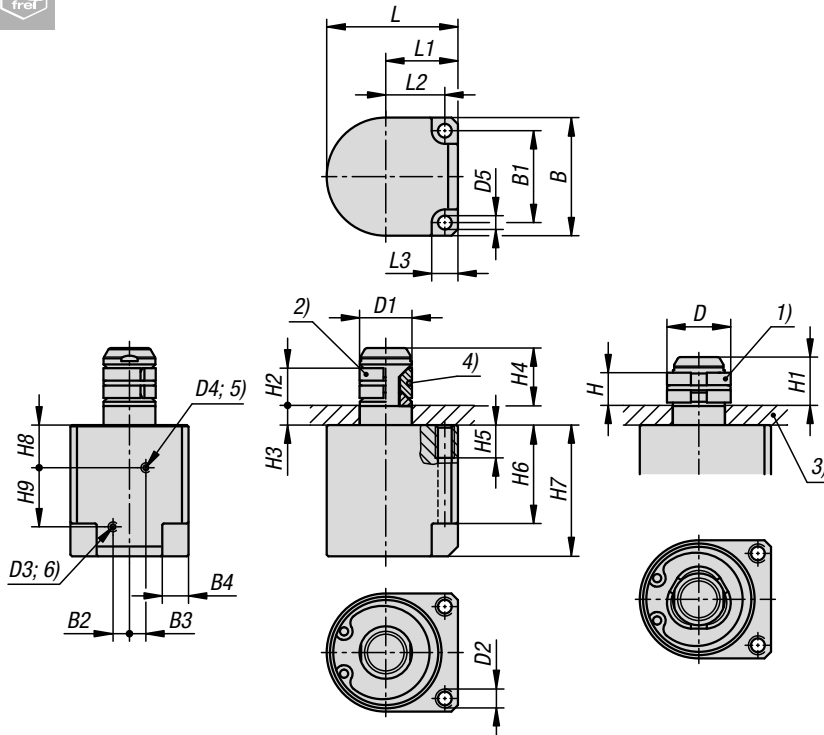
Drawing reference:
1) plate

KIPP Clamping pins stainless steel

Order No.	D	D1	H	H1	L	M	SW
K1564.16	6	7	7,6	0,5	5,8	M04X0,7	5
K1564.18	8	9	8,7	0,5	5,8	M05X0,8	7

Centring clamps stainless steel

pneumatic



Workpieces are clamped and released by compressed air.
The possible clamping diameter is from 16 to 20 mm.

Material:
Body, stainless steel.
Seal, NBR.

Version:
Stainless steel bright.

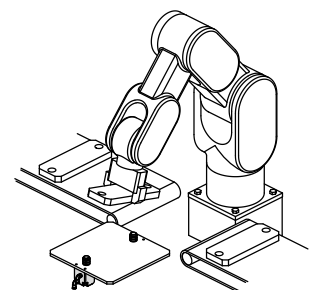
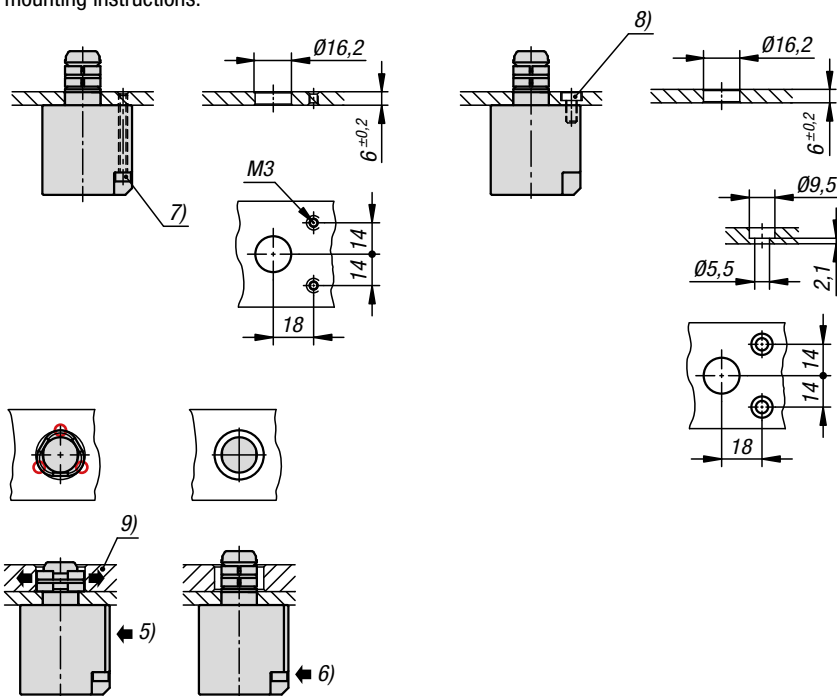
Sample order:
K1742.16

Note for ordering:
Cylinder head screws M4X35 for fastening from below are included with delivery.
Cylinder head screws with low head M5 for fastening from above are not included with delivery.

Note:
Installed dimensions for plate thickness 6 mm.
The stated retaining forces are related to an operating pressure of 0.5 Mpa and a surface quality of Ra 1.6 µm.
Repeat accuracy in this case is ±0.2 mm.

- Drawing reference:**
- 1) „Clamping“ position
 - 2) „Release“ position
 - 3) Mounting plate
 - 4) O-ring
 - 5) „Clamping“ connection
 - 6) „Release“ connection
 - 7) Cylinder head screw M4
 - 8) Cylinder screw with low head M5
 - 9) Workpiece

mounting instructions:



KIPP Centring clamps stainless steel, pneumatic

Order No.	B	B1	B2	B3	B4	D	D1	D2	D3	D4	D5	H	H1	H2
K1742.16	36	28	5	5	7,5	20	16	M5	M3	M3	4,2	10	14,7	11,3
Order No.	H3	H4	H5	H6	H7	H8	H9	L	L1	L2	L3	Holding force N	Operating pressure MPa	
K1742.16	6	17,5	10	30	40	13	18	40	22	18	8	77	0,3 - 0,7	