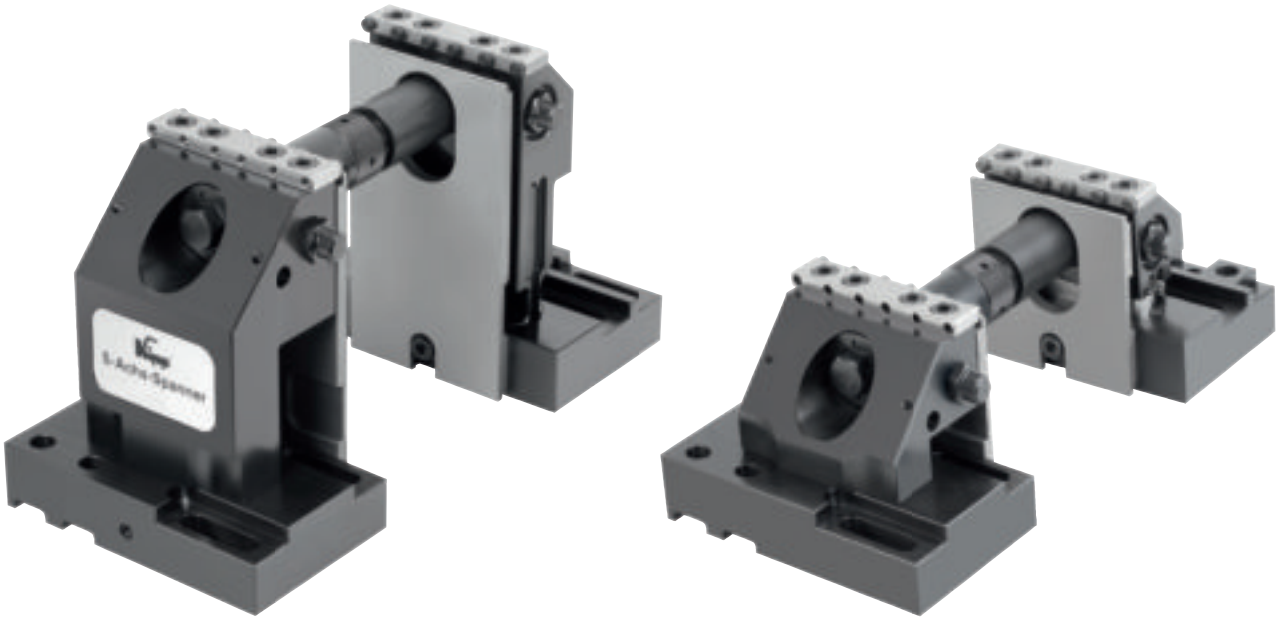
3-axis clamping system
5-axis clamping system



5 Axis clamping system

Trend-setting clamping concept for 5-sided machining

The 5-axis clamping system complements modern milling centres to produce an unbeatable overall concept.

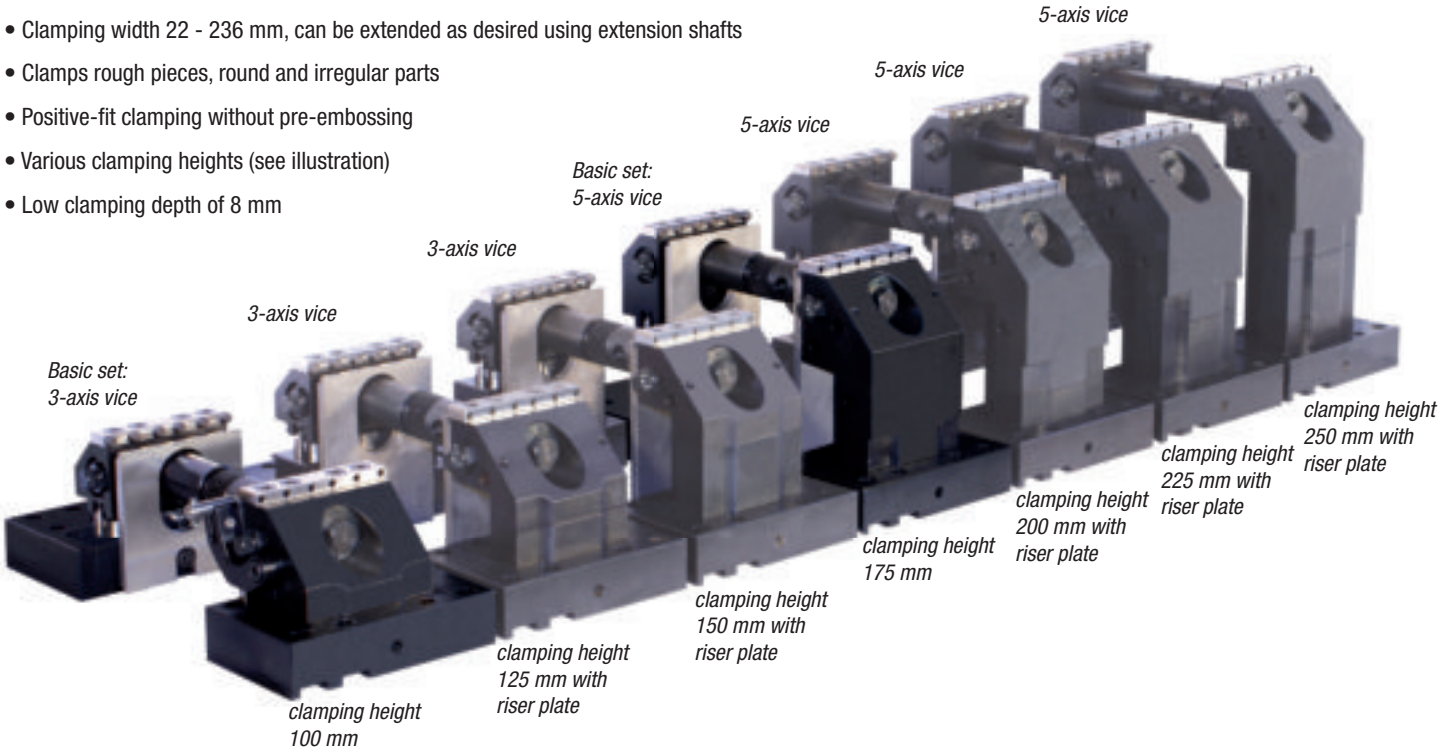
Many products are becoming more complicated than ever, and also have to be produced in an extremely short time and with maximum precision. To satisfy these criteria workpieces must more often be completely machined in one set-up. Modern manufacturing technology adopted by machine tool manufacturers is the developement of 5-axis machining. Complete machining of workpieces on 5-axis centres transfers the entire high precision to the workpiece.

Due the greater configuration options for workpieces provided by 5-axis machining, a high-performance clamping system is an essential precondition for the efficient use of these machines. Among other things, an optimised clamping system helps guarantee that the machine‘s complex travel can produce a high-precision workpiece.

The 5-axis clamping systems allow machining free of interfering edges and vibration, with extremely high cutting and feed forces. They enable the application of extremely short tools in order to guarantee the required tolerances and surfaces.

5 and 3 axis vices for trouble-free 5-sided machining with a single setup

- Can be set up on grid hole plates, on T-slot plates and on your own fixtures
- Clamping force up to 42 kN by installing a tension spindle immediately under the workpiece
- Clamping width 22 - 236 mm, can be extended as desired using extension shafts
- Clamps rough pieces, round and irregular parts
- Positive-fit clamping without pre-embossing
- Various clamping heights (see illustration)
- Low clamping depth of 8 mm



5 Axis clamping system

Special technical features - clamping process

before clamping

The clamping process involves the penetration of hardened, exchangeable clamping pins in to the workpiece. This guarantees positive-fit clamping without pre-embossing. Optionally, flattened clamping pins are available for

clamping workpieces with sensitive surfaces. Additional flexible applications are possible using accessories, including clamping jaws for specific clamping tasks and round clamping elements for clamping round parts.

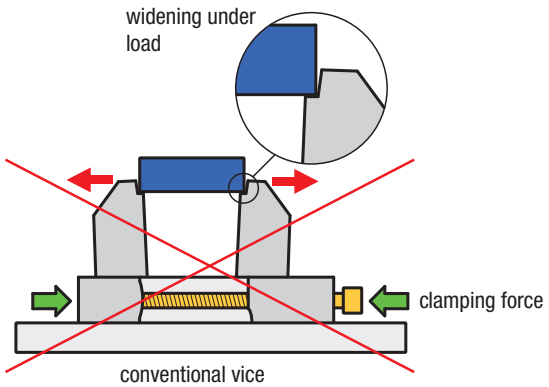
The 5 axis clamping systems provides you with a universal clamping element that is able to clamp workpieces with a clamping width of 22 - 236 mm. The clamping width can be extended as desired through the use of extension shafts.

after clamping

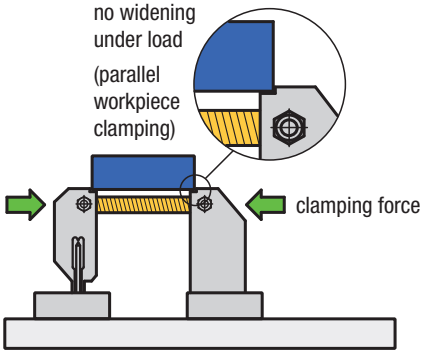
High clamping forces up to 42 kN that are not lost due to flexing

By installing a tension spindle directly under the workpiece support the clamping force is generated where it is required.

- no widening the jaws under load
- no distortion of the machine table
- extreme rigidity allows highest cutting forces



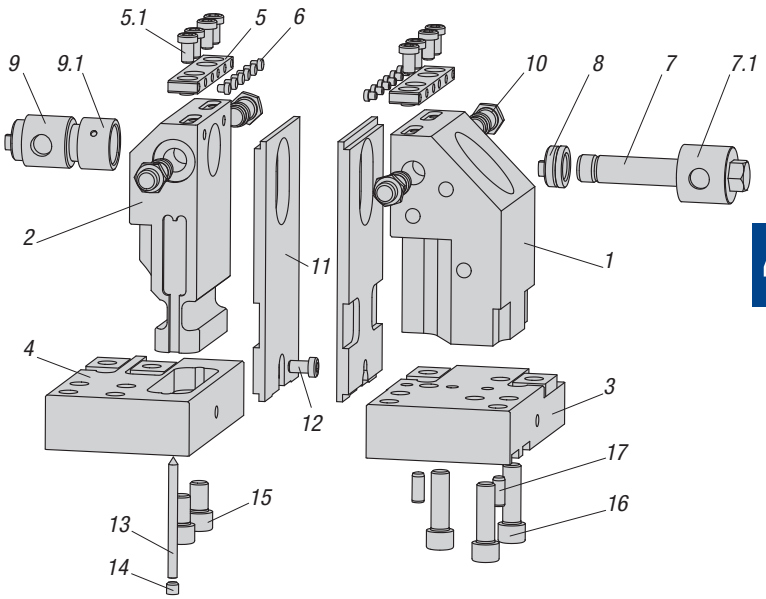
conventional vice



5-axis vice

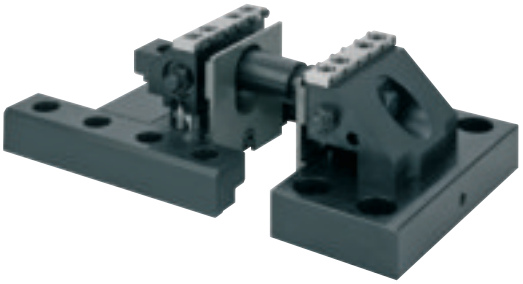
5-axis vice - system design

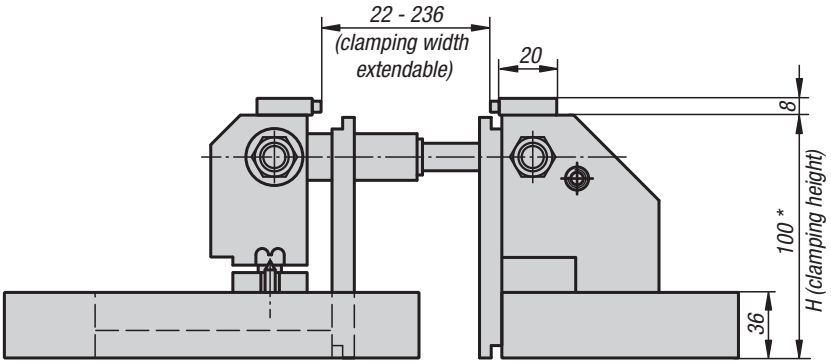
pos.	description	pcs.
1	fixed jaws	1
2	moveable jaws	1
3	base plate for fixed jaws	1
4	base plate for movable jaws	1
5	standard jaw pads with cap screws (5.1)	2
6	clamping pin	12
7	threaded spindle (7) with tension housing (7.1)	1
8	spindle nut	1
9	extension shaft (9) with union nut (9.1)	1
10	fastening screw	4
11	seating ledge	2
12	DIN 6912 M8x12 cap screw	2
13	pointer	1
14	DIN 913 M8x8 grub screw	1
15	DIN 912 M12x20 cap screw	2
16	DIN 912 M12x40 cap screw	3
17	DIN 7979 8x20 dowel pin	2

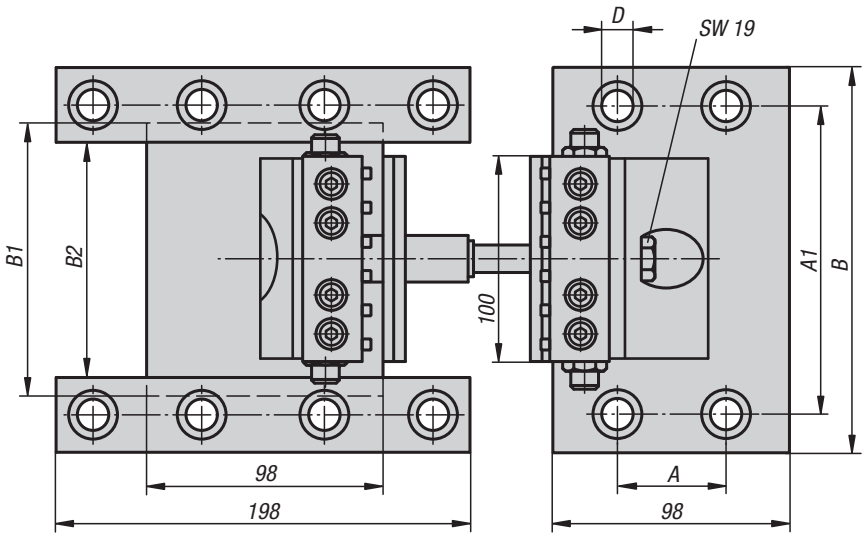


3-axis clamping system

for grid plates







Material:
Base plates and jaws low-carbon steel.
Seating ledges steel.
Jaw plates special steel.
Clamping pins tool steel.

Version:
Base plates and jaws black oxidised.
Seating ledges hardened, bright.
Jaw plates bright.
Clamping pins hardened, bright.

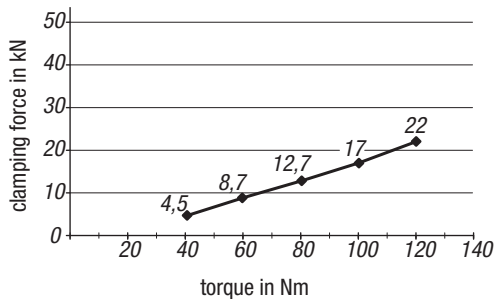
Sample order:
K0939.4012100

Note:
3-axis vices for mounting on grid plates.
These vices enable 3-sided machining free of interfering edges with a clamping depth of only 8 mm. With this clamping system, clamping widths of 22 - 236 mm are possible, and can be extended as desired using the optionally available K0947 extension shafts.
By installing a tension spindle immediately under the workpiece support, a force of up to 22 kN is applied to the workpiece; this is not lost due to flexing. The use of clamping pins with a 4 mm cup point allows positive-fit clamping without pre-embossing.
The shoulder screws K0815 are recommended for mounting the vices on grid hole plates.
The set includes one extension shaft with L = 60 mm and one with L = 120 mm.

* The clamping height can be extended with the riser plates K0941 and seating ledges K0942.

Accessories:
Stop set K0948
Shoulder screws K0815

clamping force 3 axis clamping system

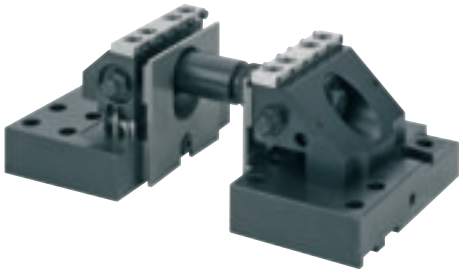


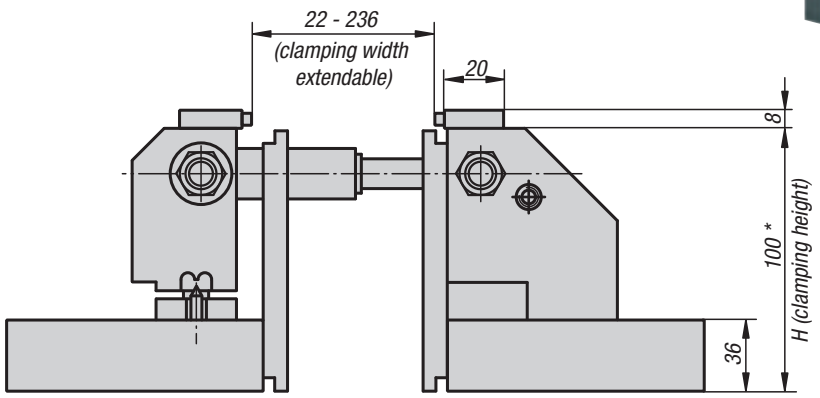
KIPP 3 Axis clamping system for grid plates

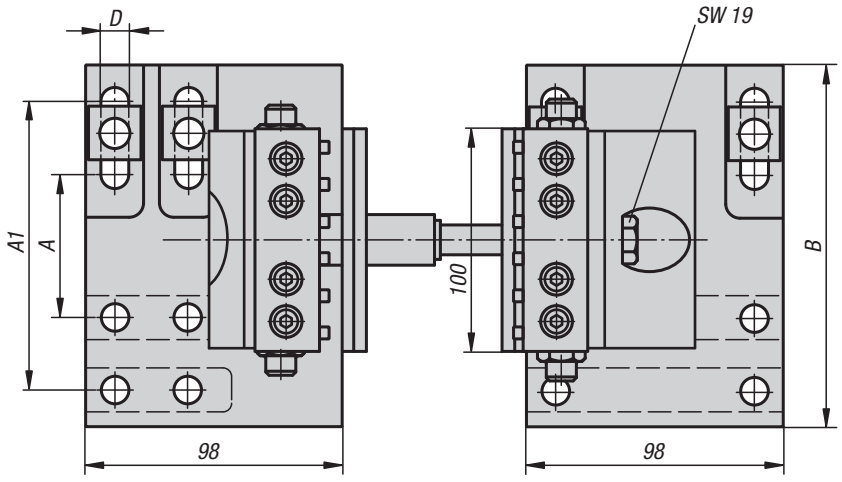
Order No.	Grid spacing	A	A1	B	B1	B2	D	H	Clamping force max. kN	weight kg
K0939.4012100	40x40 (M12)	40	160	190	148	124	12	100 *	22	18.88
K0939.5012100	50x50 (M12)	50	150	190	138	114	12	100 *	22	19.445
K0939.5016100	50x50 (M16)	50	150	190	134	110	16	100 *	22	18.74

3-axis clamping system

for T-slots







Material:
Base plates and jaws low-carbon steel.
Seating ledges steel.
Jaw plates special steel.
Clamping pins tool steel.

Version:
Base plates and jaws black oxidised.
Seating ledges hardened, bright.
Jaw plates bright.
Clamping pins hardened, bright.

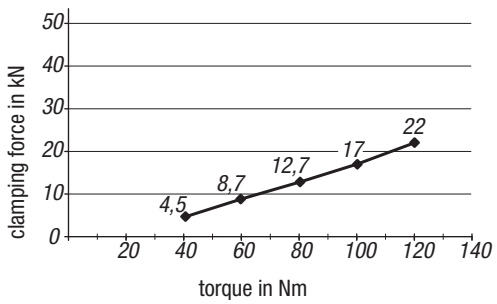
Sample order:
K0940.063100

Note:
3-axis vices for mounting on machine tables with T-slots. These vices enable 3-sided machining free of interfering edges with a clamping depth of only 8 mm. With this clamping system, clamping widths of 22 - 236 mm are possible, and can be extended as desired using the optionally available K0947 extension shafts. By installing a tension spindle immediately under the workpiece support, a force of up to 22 kN is applied to the workpiece, this is not lost due to flexing.
The use of clamping pins with a 4 mm cup point allows positive-fit clamping without pre-embossing.
The fastening set K0951 is recommended for mounting the vices on T-slot tables.
The set includes one extension shaft with L = 60 mm and one with L = 120 mm.

* The clamping height can be extended with the riser plates K0941 and seating ledges K0942.

Accessories:
Stop set K0948
Fastening set K0951

clamping force 3 axis clamping system

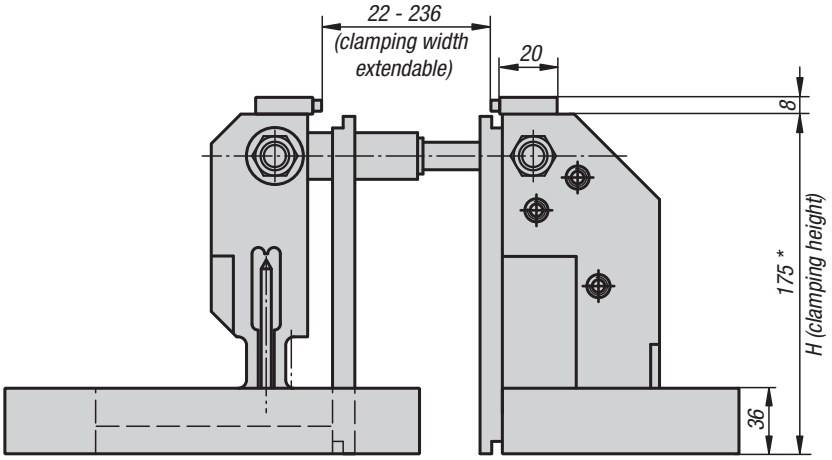


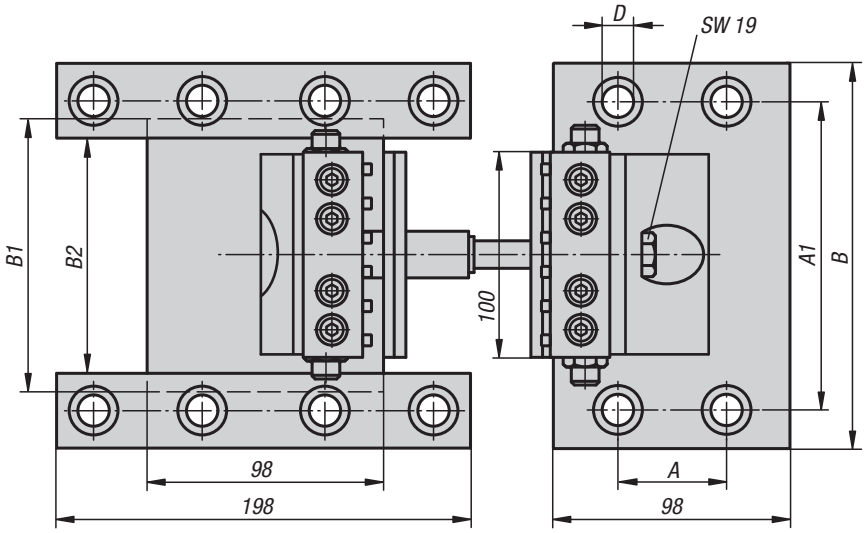
KIPP 3 Axis clamping system for T-slots

Order No.	Suitable for	A	A1	B	D	H	Clamping force max. kN	weight kg
K0940.063100	Slot spacing 63 - 126	63	126	158	12,5	100 *	22	14.8

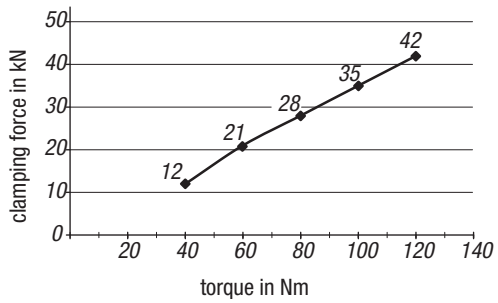
5-axis clamping system

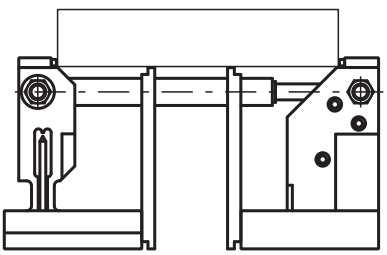
for grid plates

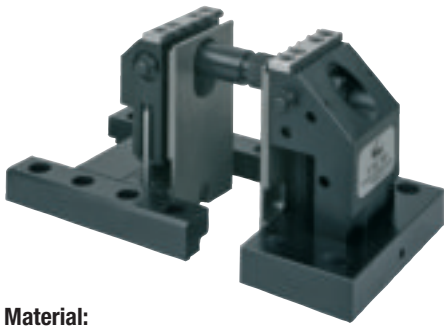




clamping force 5 axis clamping system







Material:
Base plates and jaws low-carbon steel.
Seating ledges steel.
Jaw plates special steel.
Clamping pins tool steel.

Version:
Base plates and jaws black oxidised.
Seating ledges hardened, bright.
Jaw plates bright.
Clamping pins hardened, bright.

Sample order:
K0939.4012175

Note:
5-axis vices for mounting on grid plates.
These vices enable 5-sided machining free of interfering edges with a clamping depth of only 8 mm. With this clamping system, clamping widths of 22 - 236 mm are possible, and can be extended as desired using the optionally available K0947 extension shafts. By installing a tension spindle immediately under the workpiece support, a force of up to 42 kN is applied to the workpiece; this is not lost due to bending. The use of clamping pins with a 4 mm cup point allows positive-fit clamping without pre-embossing.
The shoulder screws K0815 are recommended for mounting the vices on grid hole plates.
The set includes one extension shaft with L = 60 mm and one with L = 120 mm.

* The clamping height can be extended with the riser plates K0941 and seating ledges K0942.

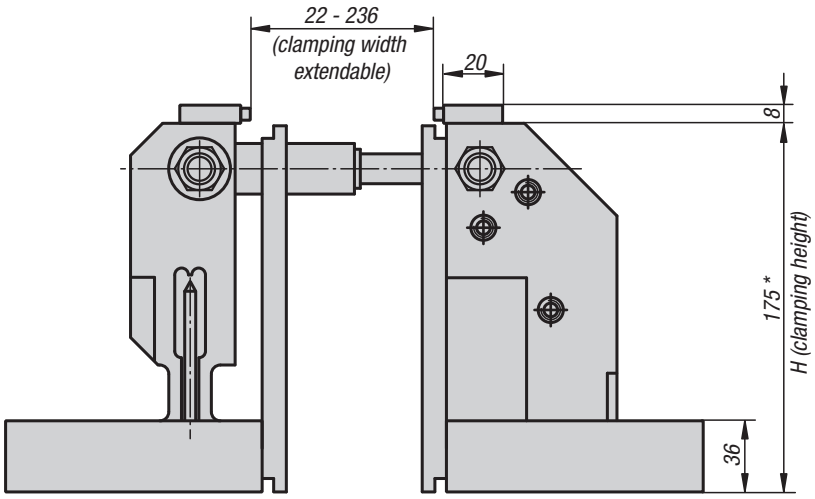
Accessories:
Stop set K0948
Locating bolts K0815

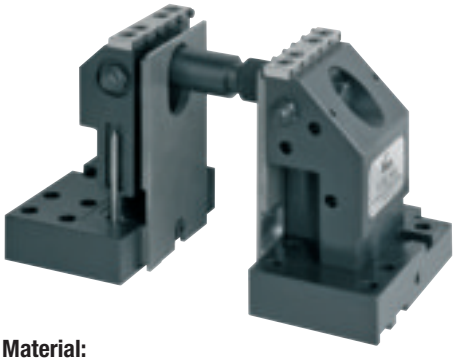
KIPP 5 Axis clamping system for grid plates

Order No.	Grid spacing	A	A1	B	B1	B2	D	H	Clamping force max. kN	weight kg
K0939.4012175	40x40 (M12)	40	160	190	148	124	12	175 *	42	25.095
K0939.5012175	50x50 (M12)	50	150	190	138	114	12	175 *	42	25.232
K0939.5016175	50x50 (M16)	50	150	190	134	110	16	175 *	42	25.265

5-axis clamping system

for T-slots



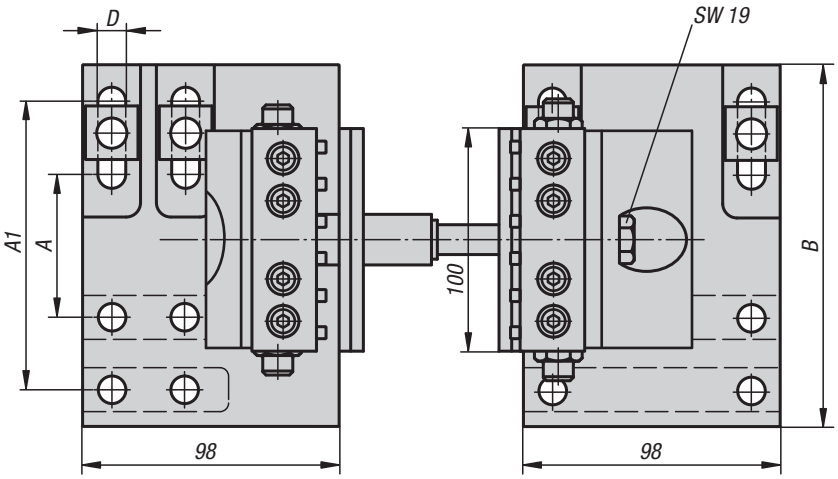


Material:
Base plates and jaws low-carbon steel.
Seating ledges steel.
Jaw plates special steel.
Clamping pins tool steel.

Version:
Base plates and jaws black oxidised.
Seating ledges hardened, bright.
Jaw plates bright.
Clamping pins hardened, bright.

Sample order:
K0940.063175

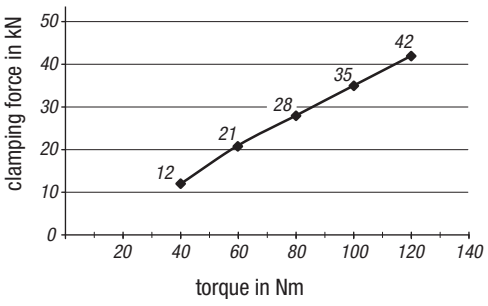
Note:
5-axis vices for mounting on machine tables with T-slots. These vices enable 5-sided machining free of interfering edges with a clamping depth of only 8 mm. With this clamping system, clamping widths of 22 - 236 mm are possible, and can be extended as desired using the optionally available K0947 extension shafts. By installing a tension spindle immediately under the workpiece support, a force of up to 42 kN is applied to the workpiece, this is not lost due to flexing. The use of clamping pins with a 4 mm cup point allows positive-fit clamping without
pre-embossing.
The fastening set K0951 is recommended for mounting the vices on T-slot tables.
The set includes one extension shaft with L = 60 mm and one with L = 120 mm.



* The clamping height can be extended with the riser plates K0941 and seating ledges K0942.

Accessories:
Stop set K0948
Fastening set K0951

clamping force 5 axis clamping system

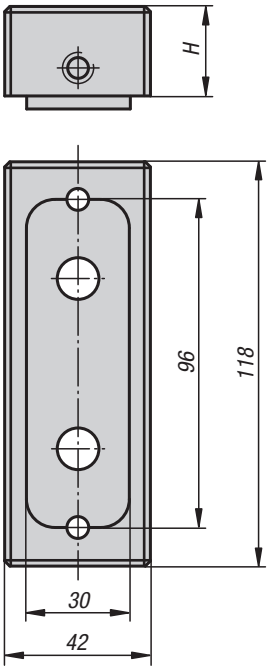


KIPP 5 Axis clamping system for T-slots

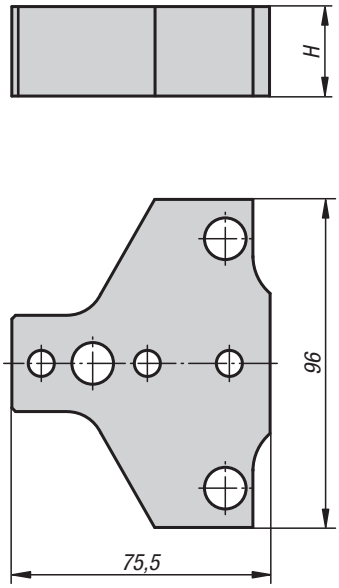
Order No.	Suitable for	A	A1	B	D	H	Clamping force max. kN	weight kg
K0940.063175	Slot spacing 63 - 126	63	126	158	12,5	175 *	42	21.32

Riser plates

risers for
moveable side



risers for
fixed side

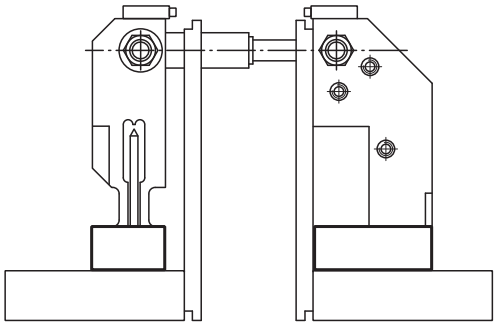


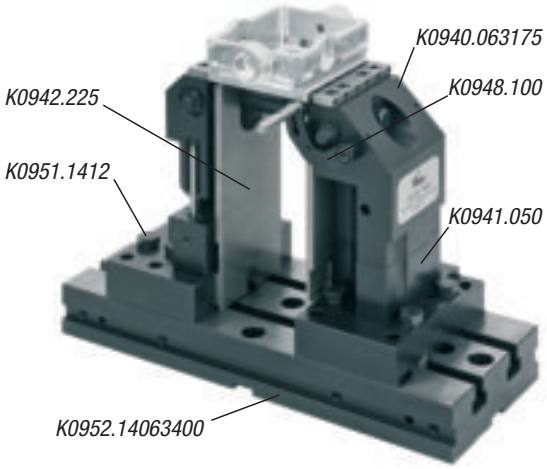
Material, version:
Steel, black oxidised.

Sample order:
K0941.025
(supplied in pairs)

Note:
The riser plates are mounted between the base plate and the jaw body, raising the 3-axis vices to 125 or 150 mm. The 5-axis vices can be raised to 200, 225 or 250 mm. When using the riser plates the matching seating ledges K0942 must also be installed.

Supplied with fastening screws and cylindrical pins.

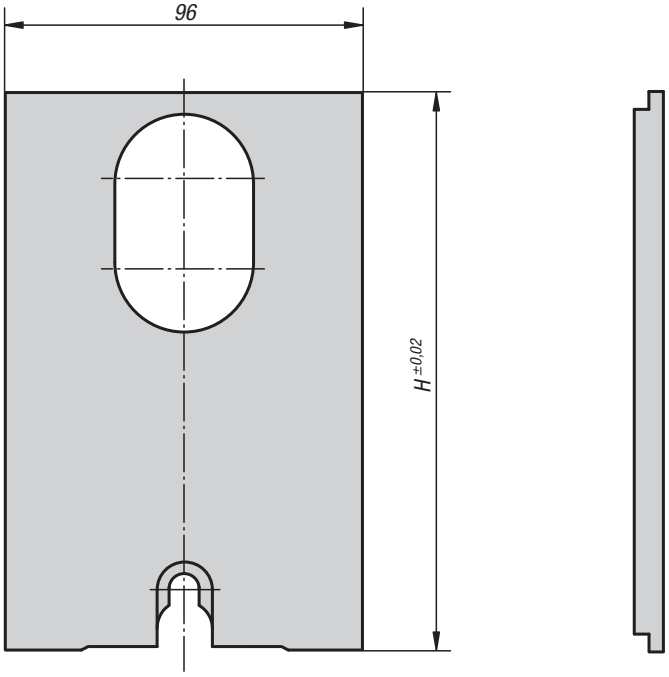




KIPP Riser plates

Order No.	H	weight kg
K0941.025	25	1.861
K0941.050	50	3.701
K0941.075	75 (25 + 50)	5.271

Seating ledges

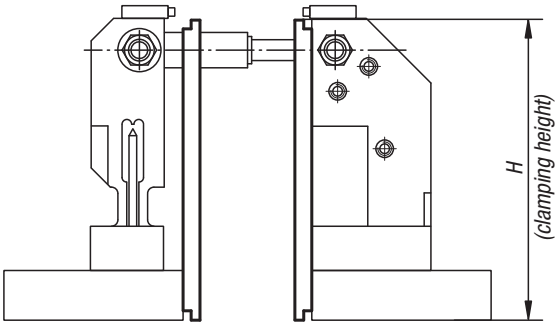


Material, version:
Steel hardened, bright.

Sample order:
K0942.100
(supplied in pairs)

Note:
If the riser plates K0941 are used to raise the height, the seating ledges must be changed to suit.

*Including 12 jaw pins K0946.05600.

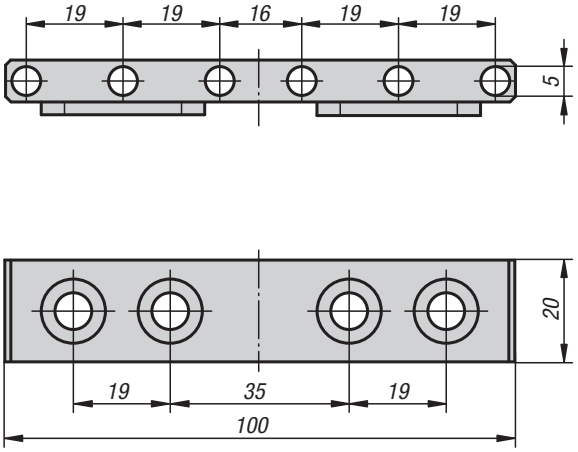


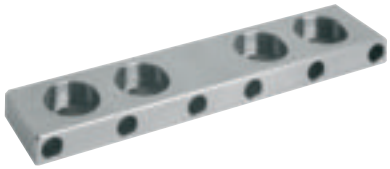
KIPP Seating ledges

Order No.	H	Suitable for
K0942.100	100	3-axis vice basic set
K0942.105*	105	3-axis vice basic set
K0942.125	125	3-axis vice with 25 mm riser plate
K0942.150	150	3-axis vice with 50 mm riser plate
K0942.175	175	5-axis vice basic set
K0942.180*	180	5-axis vice basic set
K0942.200	200	5-axis vice with 25 mm riser plate
K0942.225	225	5-axis vice with 50 mm riser plate
K0942.250	250	5-axis vice with 75 mm riser plate (25 + 50)

K0943

Jaw plates standard





Material, version:
Special steel, bright.

Sample order:
K0943.110008

Note:
Jaw plates with holes to press the jaw pins into. Suitable for all 3-axis and 5-axis vices.

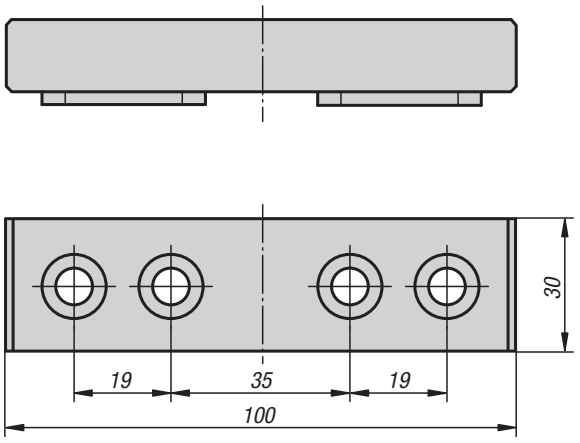
Accessories:
Jaw pins K0946

KIPP Jaw plates, standard

Order No.	Suitable for
K0943.110008	all 3-axis and 5-axis vices

K0944

Jaw plates machinable



Material, version:
Steel 1.0503, bright.

Sample order:
K0944.210020

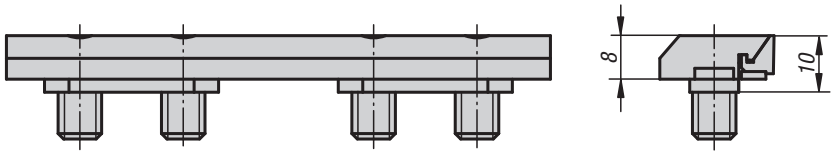
Note:
Machinable jaw plates can be machined to suit specific workpieces. Suitable for all 3-axis and 5-axis vices.

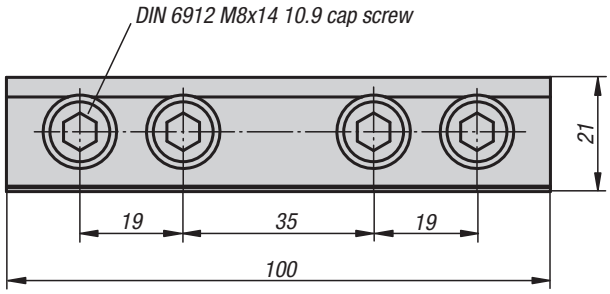
KIPP Jaw plates machinable

Order No.	Suitable for
K0944.210020	all 3-axis and 5-axis vices

K0953

Draw-down jaws





Material, version:
Special steel, bright.

Sample order:
K0953.110008

Note:
Positive down jaw plates for clamping pre-machined workpieces.
Suitable for all 3-axis and 5-axis vices.

Supplied in pairs.

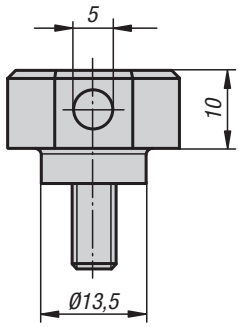
KIPP Draw-down jaws

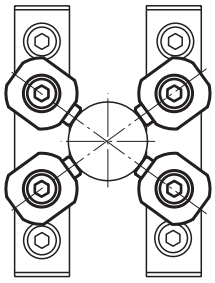
Order No.	Suitable for
K0953.110008	all 3-axis and 5-axis vices

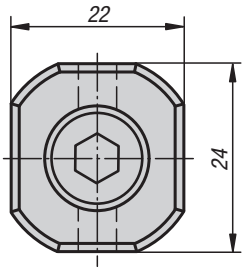
K0945

Jaw adapters

for round workpieces







Material, version:
Adapter blocks carbon steel, black oxidised.
Cap screw, grade 10.9.

Sample order:
K0945.135010
(supplied in sets of 4)

Note:
For clamping round workpieces with a diameter of 30 - 200 mm. Screwed directly into the standard or machinable jaw plates.

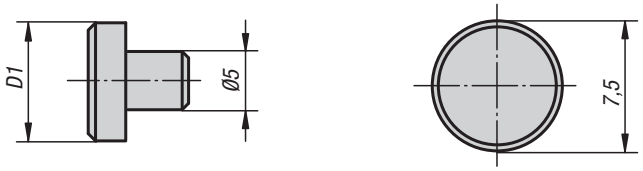
Accessories:
Jaw pins K0946

KIPP Jaw adapters for round workpieces

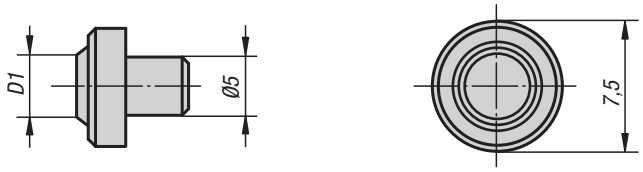
Order No.	Suitable for
K0945.135010	all 3-axis and 5-axis vices

Jaw pins

flattened



cup point



Material, version:
Tool steel, hardened.

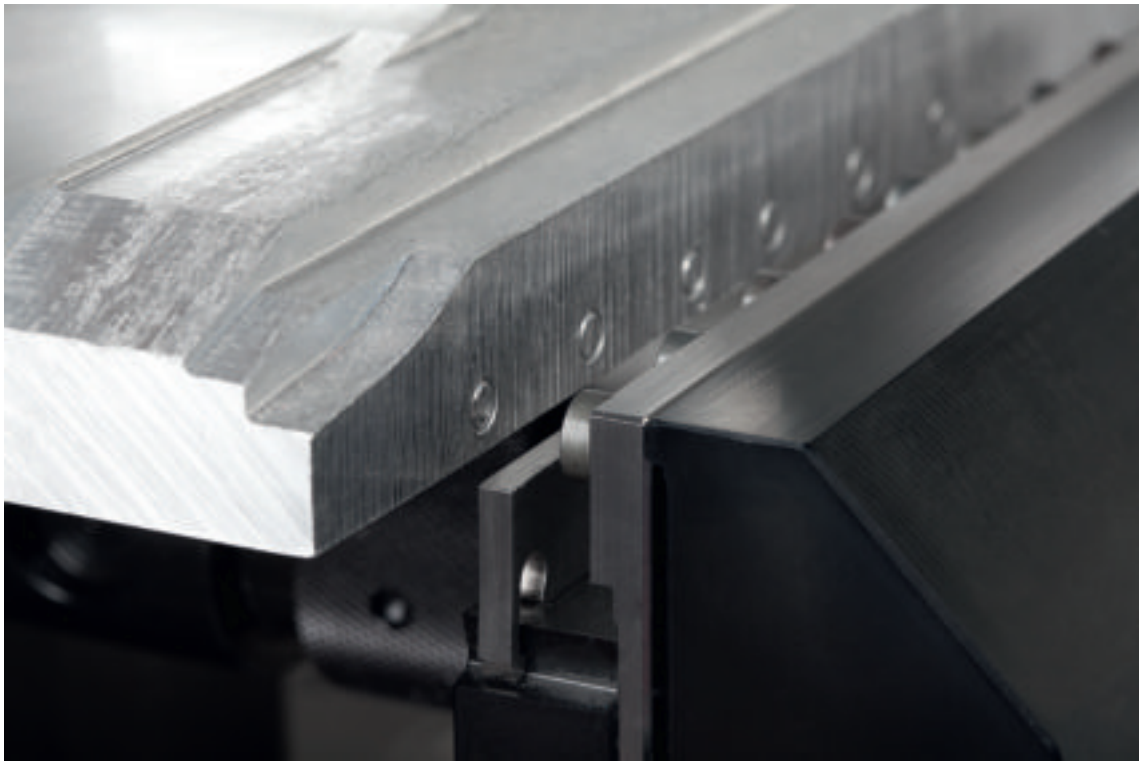
Sample order:
K0946.05600

Note:
Suitable for standard jaw plates and jaw adapters of round workpieces.
Installed by pressing in.

KIPP Jaw pins

Order No.	Version	D1	Application
K0946.05000	flattened	7,5	Material over 1000 N/mm² tensile strength
K0946.05400	cup point	4	Material up to ca. 1000 N/mm² tensile strength
K0946.05600	cup point	6	Material up to ca. 1000 N/mm² tensile strength

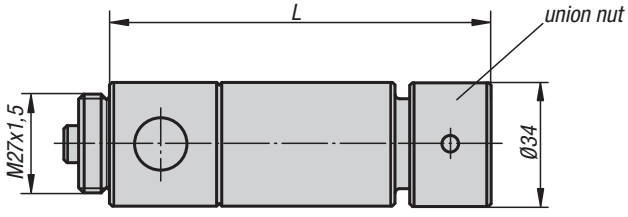
Application example

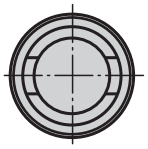


K0947

Extension shafts

with union nut





Material, version:
Carbon steel, black oxidised.

Sample order:
K0947.060

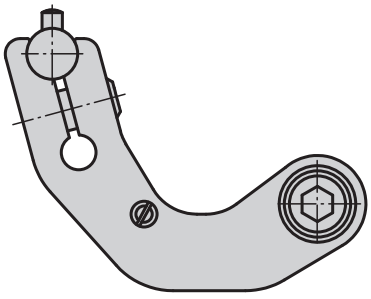
Note:
To extend the clamping width.
Supplied with union nut. The extension shafts can be combined as desired.

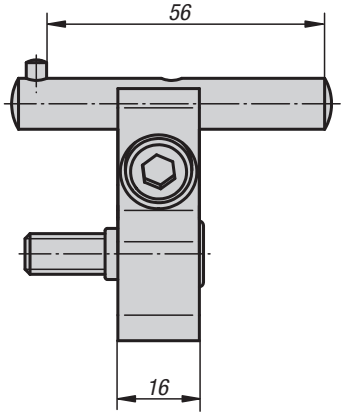
KIPP Extension shafts with union nut

Order No.	L	Clamp range
K0947.060	60	22 - 86
K0947.120	120	80 - 146
K0947.240	240	extended by 240 mm
K0947.480	480	extended by 480 mm

K0948

Stop set





Material:
Steel.

Version:
Swivel arm, black oxidised.
Stop pin bright.

Sample order:
K0948.100

Note:
Stop set for direct fastening to fixed jaws. The stop can be swivelled aside for machining of the workpiece without losing the stop dimension. Supplied complete with attaching parts.

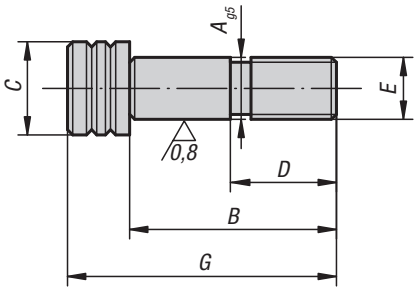
KIPP Stop set

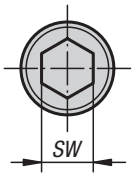
Order No.	Suitable for
K0948.100	all 3-axis and 5-axis vices

K0815

Shoulder screws

Form B





Material:
Carbon steel.

Version:
Tempered, black oxidised.
Precision diameters ground.

Sample order:
K0815.12055

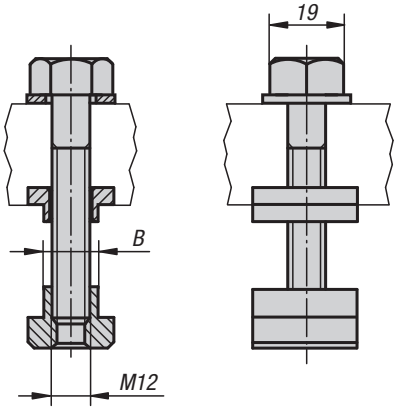
KIPP Shoulder screws Form B

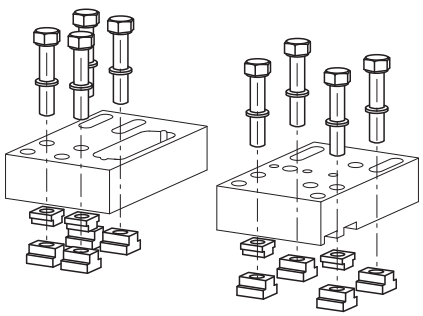
Order No.	A	B	C	D	E	G	SW
K0815.12055	12	55	18	22	M12	67	10
K0815.16055	16	55	24	25	M16	71	14

K0951

Fastening set

for T-slots





Material, version:
Carbon steel, black oxidised.

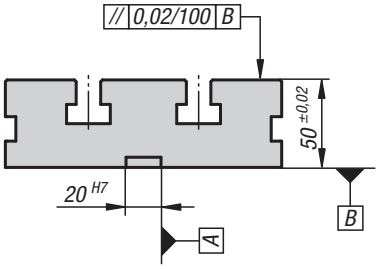
Sample order:
K0951.1412

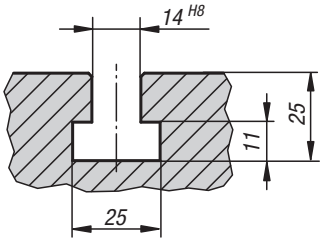
Note:
Fastening sets for aligning and securing 3 and 5 axis vices on tables with T-slots sizes 14 or 18.
Sets consisting of:
8x ISO 4014 M 12x60 12.9 hex head bolts
8x DIN 508 T-slot nuts
8x washers
4x slot keys

KIPP Fastening set for T-slots

Order No.	Version	B
K0951.1412	Slot width 14	14
K0951.1812	Slot width 18	18

T-slot plate

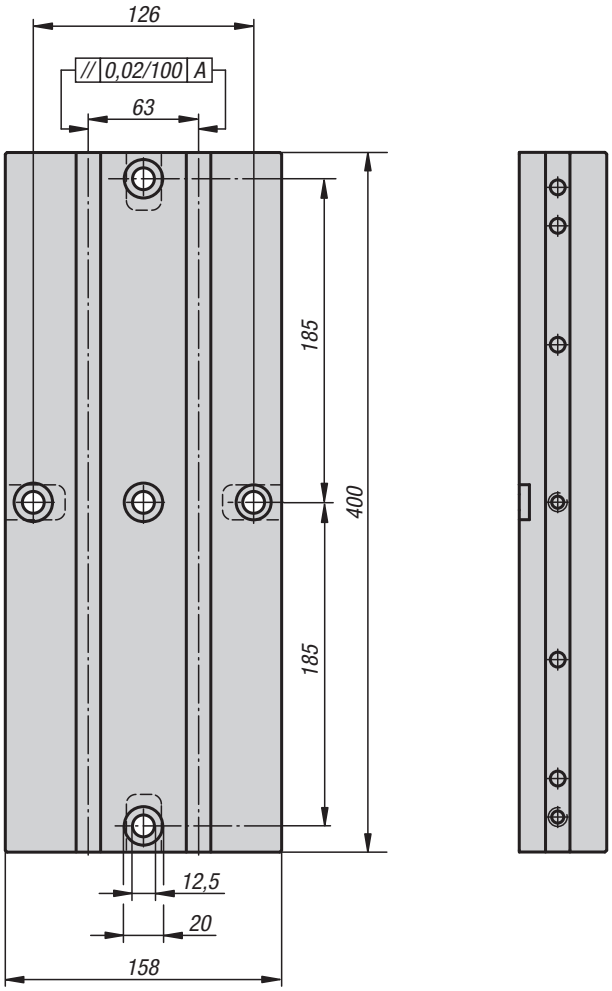


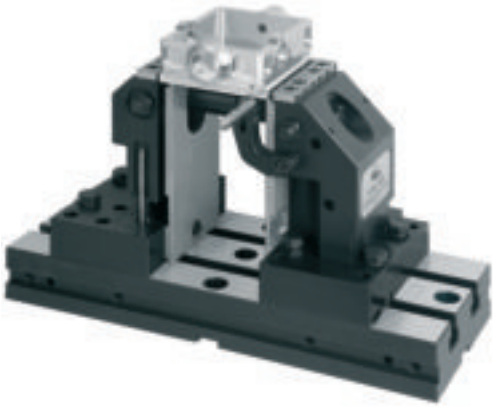


Material, version:
Carbon steel, black oxidised.
Contact faces ground.

Sample order:
K0952.14063400

Note:
T-slot plates with locating slots on the underside for easy alignment of the plate on the machine table.





KIPP T-slot plate

Order No.	Version	weight kg
K0952.14063400	Slot width 14 / slot spacing 63	21.135