



Form holding systems



Machinable collet system
for self-installation
K0500



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Technical information for machinable collet systems



The clamping system for prototypes, samples and small to medium production series.

The machinable collet system consists of a base element with a flange plate and the machinable collet. To clamp a wide variety of workpieces only the collet needs to be exchanged, the base element with flange plate remain the same. Standard aluminium collet blanks are used for clamping workpieces. The contour of the workpiece to be clamped is machined into this collet blank.

Both external and internal contours can be clamped with the machinable collet system. Different collets for internal and external clamping are available for this purpose.

The integrated spring package generates a clamping force of 5.8 kN. The clamping force can be raised to 43.5 kN by pneumatic post-clamping.



Machinable collets for workpieces that couldn’t otherwise be clamped

- whether geometrical or free-form: you have full control of the most difficult workpiece contours
- can be set up on grid plates, T-slot plates and your own fixtures
- clamping range of 25 - 140 mm and workpiece weights up to 25 kg
- clamps rough parts, machined parts, round and irregular-shaped parts
- low clamping depth of 1 mm can be achieved
- designed for external and internal clamping
- repeat accuracy of < 0.01 mm

Machinable collet clamping and holding force

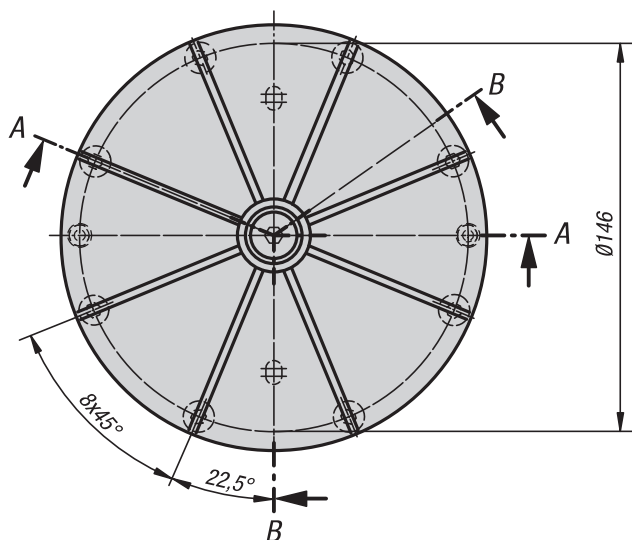
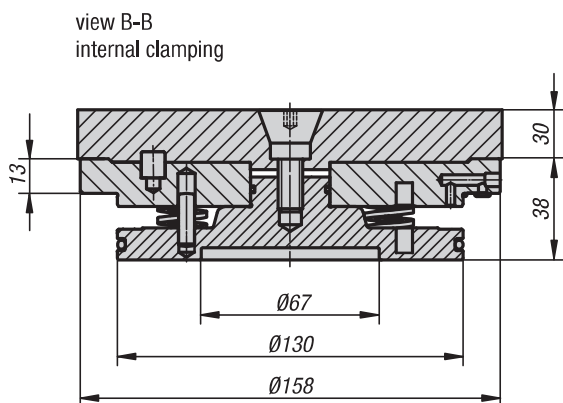
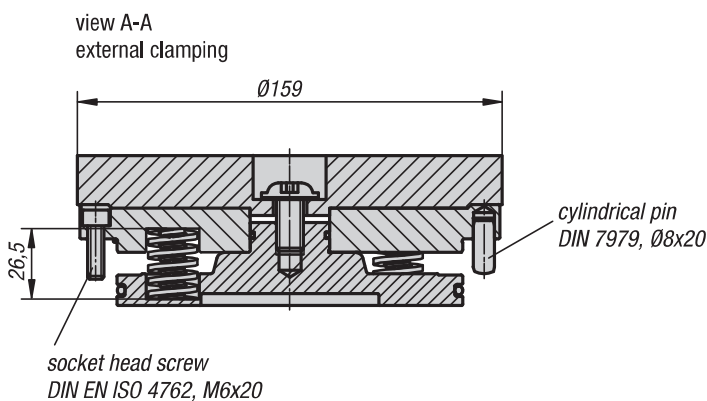
spring release pressure	spring clamping force	spring retaining force	post-clamping pressure	post-clamping force	post-clamping retaining force
6 bar	5.81 kN	2.8 kN	6 bar	13.39 kN	10.39 kN
6 bar	5.81 kN	2.8 kN	12 bar	20.93 kN	17.93 kN
6 bar	5.81 kN	2.8 kN	30 bar	43.55 kN	40.55 kN

Machinable collet - system construction

pos.	description		piece
1	collet		1
2	flange plate		1
3	piston		1
4	spring package		8
5	screw / tension cone		2
6	base element		1
P1	Release collet with compressed air pistol connection		
P2	Post-clamp with compressed air pistol connection		

Machinable collet system

for self-installation



Material:

Flange plate, pistons and body steel.
Seals NBR.
Screws DIN EN ISO 4762 grade 8.8.
Collet aluminium.

Version:

Flange plate, piston and body rust-resistant, bright.
Screws galvanized.
Collet red or clear anodized.

Sample order:

K0500.116030

Note:

The machinable collet system is suitable for mounting on fixtures and clamping systems. Collets for external and internal clamping can be mounted on the flange plate. The contour of the workpiece to be clamped is machined into the collet. Free-form and asymmetrical contours can be clamped.

The integrated spring package generates a clamping force of 5.8 kN. The clamping force can be raised to 43.5 kN by pneumatic post-clamping. The clamp is released by blowing compressed air onto the lower piston surface pushing the piston upwards and releasing the clamping force on the collet. Clamping travel 0.2 mm. Repeat accuracy < 0.01 mm.

Installation dimensions on request.

Accessories:

Collet for external or internal clamping K0502



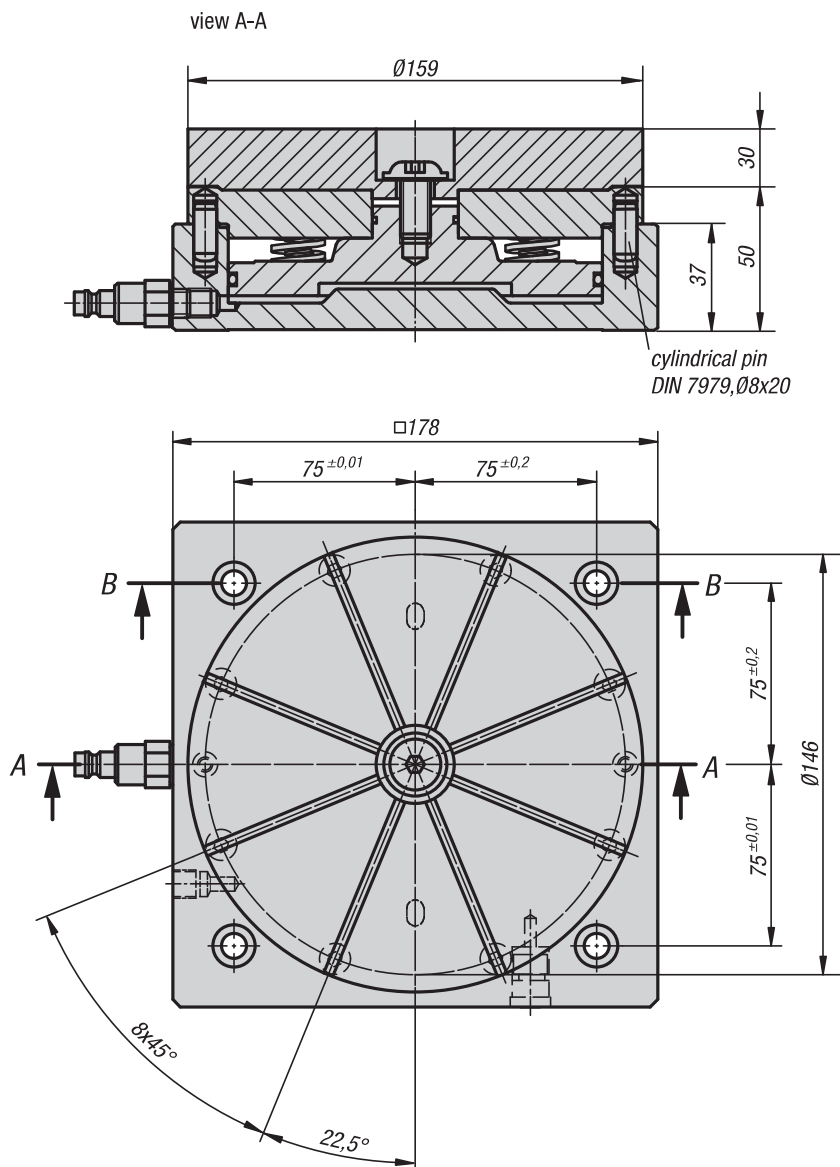
Illustration without collet with transport lock

KIPP Machinable collet system for self-installation

Order No.	Version	Clamping range min. - max.	Milling depth min./max.	Workpiece weight max. (kg)
K0500.116030	external clamping	Ø 30 - Ø 140	1-20	25
K0500.216030	internal clamping	Ø 30 - Ø 140	1-20	25

Machinable collet system

for grid plates



Material:

Flange plate, pistons and body steel.
Seals NBR.
Screws DIN EN ISO 4762 grade 8.8.
Collet aluminium.

Version:

Flange plate, piston and body rust-resistant, bright.
Screws galvanized.
Collet red or clear anodized.



Sample order:

K0501.11603050

Note:

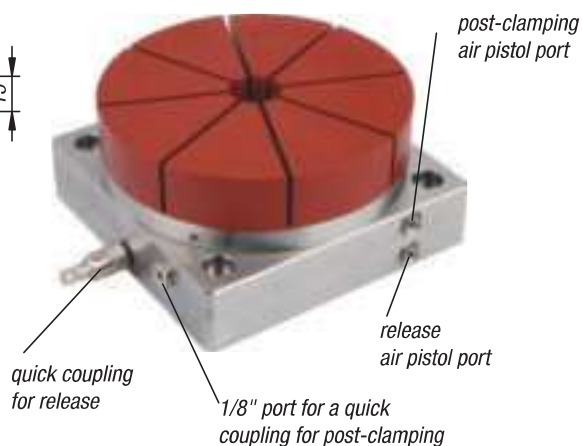
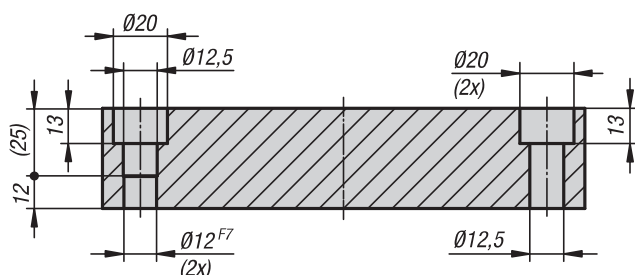
Machinable collet system with base plate for mounting on 50mm pitch grid plates. The flange plate can be used for external or internal clamping collets. The contour of the workpiece to be clamped is machined into the collet. Free-form and asymmetrical contours can be clamped.

The integrated spring package generates a clamping force of 5.8 kN. The clamping force can be raised to 43.5 kN by pneumatic post-clamping. The clamp is released by blowing compressed air onto the lower piston surface pushing the piston upwards and releasing the clamping force on the collet. Clamping travel 0.2 mm. Repeat accuracy < 0.01 mm.

Accessories:

Collet for external or internal clamping K0502

view B-B
(base only)



KIPP Machinable collet system for grid plates

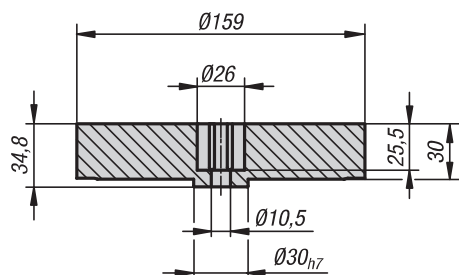
Order No.	Version	Clamping range min. – max.	Milling depth min./max.	Workpiece weight max. (kg)	Suitable shoulder screw
K0501.11603050	external clamping	Ø 30 – Ø 140	1–20	25	K0815.12055
K0501.21603050	internal clamping	Ø 30 – Ø 140	1–20	25	K0815.12055

Collets

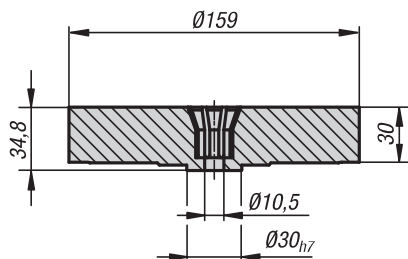
for external or internal clamping



external clamping



internal clamping



Material, version:

High-strength aluminium, red (external clamping) or clear (internal clamping), anodized.

Sample order:

K0502.116030

Note:

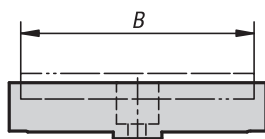
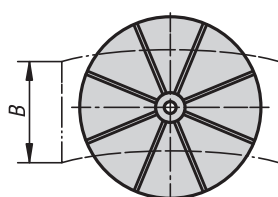
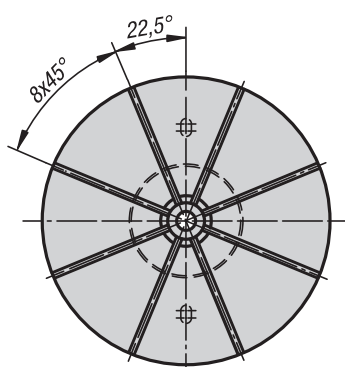
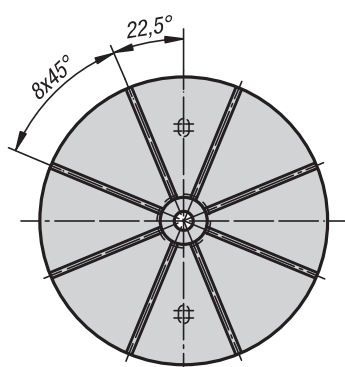
Collet for clamping external or internal contours. The contour of the workpiece to be clamped is machined into the collet. Free-form and asymmetrical contours can be clamped.

Clamping travel 0.2 mm.

Tension cone K0502.1024 is required for internal clamping collets.

Accessories:

Tension cone K0502.1024



The workpiece width "B" should be maximum 90% of the collet diameter.
In special cases the workpiece may also project over the collet.



external clamping



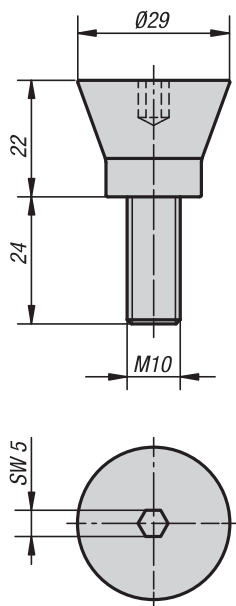
internal clamping

KIPP Collets for external or internal clamping

Order No.	Version	Clamping range min. - max.	Milling depth min./max.	Workpiece weight max. (kg)
K0502.116030	external clamping	Ø 30 - Ø 140	1-20	25
K0502.216030	internal clamping	Ø 30 - Ø 140	1-20	25

Tension cone

for internal clamping collet



Material:
Carbon steel.

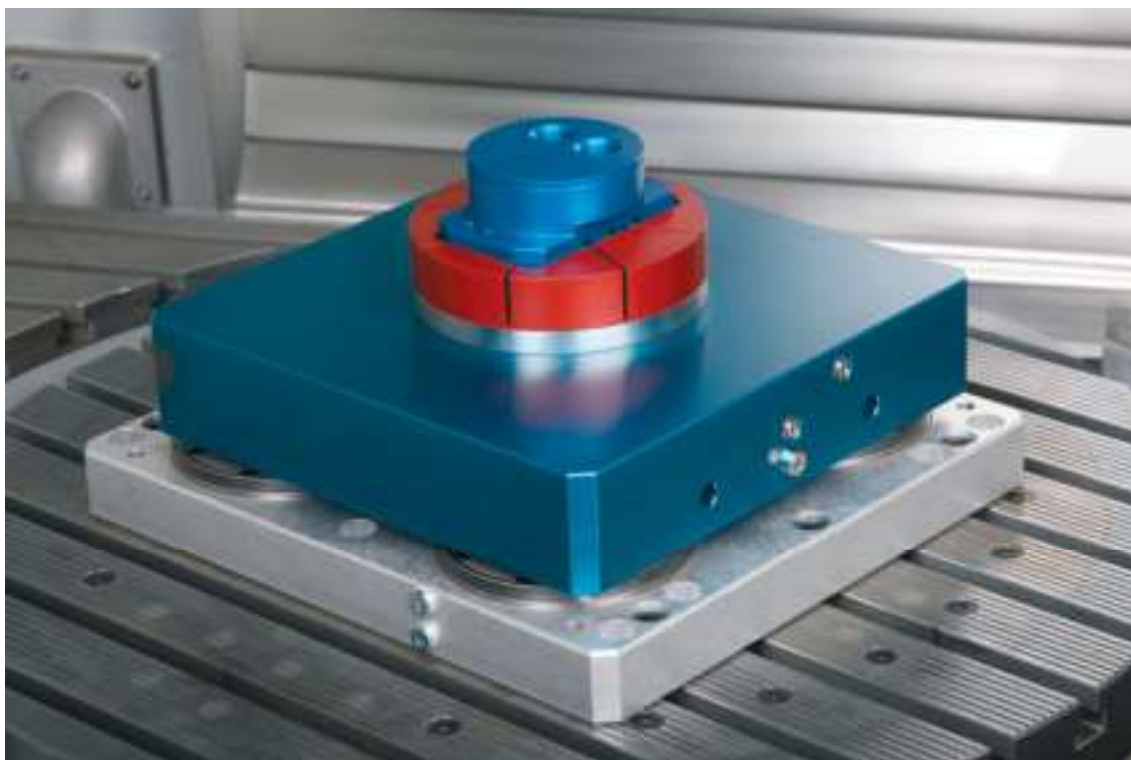
Version:
Bright.

Sample order:
K0502.1024

Accessories:
Collet for internal clamping K0502.216030

KIPP Tension cone for internal clamping collet

Order No.	Suitable for
K0502.1024	mandrel collet



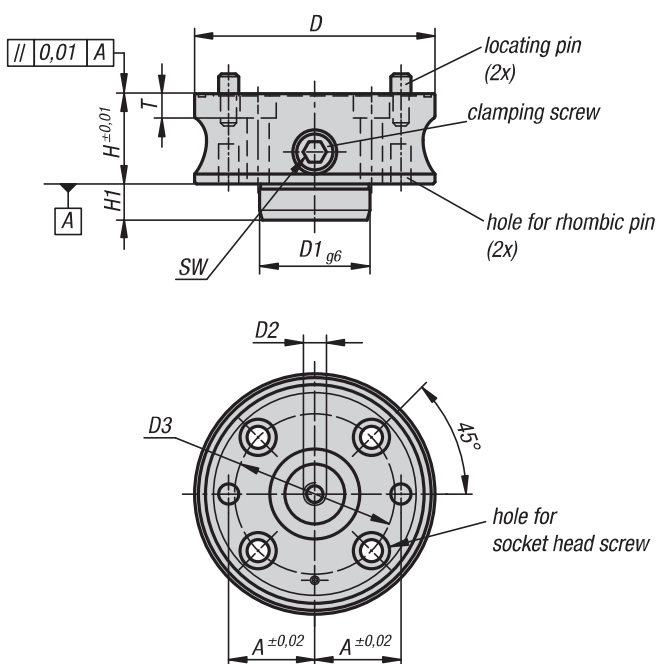
External clamping



Internal clamping



Adapter for collets



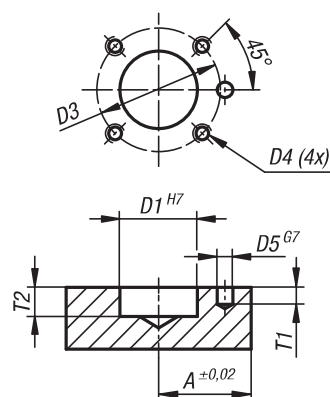
Material:
Carbon steel.

Version:
nickel-plated.

Sample order:
K1183.065

Note:
With this adaptor, collets for internal and external clamping can be mounted.
The workpiece is clamped by tightening the screw on the side.
A dowel pin is used to secure the adaptor against rotation.
The collet is positioned on the adaptor with 2 dowel pins.

installation dimensions

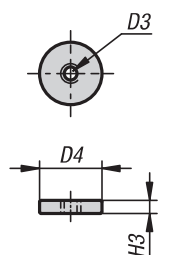
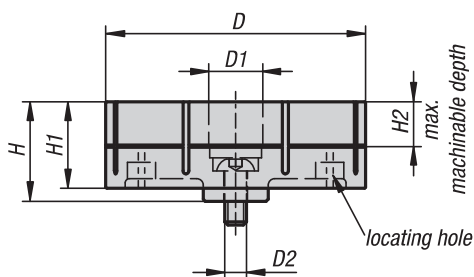


KIPP Adapter for collets

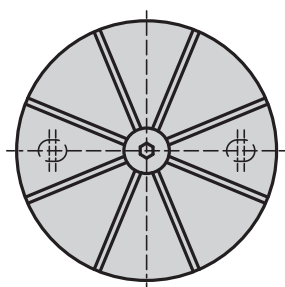
Order No.	D	A	D1	D2	D3	D4	D5	H	H1	SW	T	T1	T2	for screws	Tightening torque max. Nm	F1 kN	F2 kN
K1183.065	65	22	28	M8	42	M6x1	6	35	12	8	8	6	13	M6	15	4,5	4,5
K1183.090	90	30	42	M10	60	M8x1,25	8	40	14	8	10	8	15	M8	25	7	7
K1183.120	120	43	55	M10	80	M10x1,5	10	45	18	10	12	11	19	M10	40	10	10
K1183.160	160	60	63	M12	110	M12x1,75	12	50	24	10	14	13	25	M12	40	12	10

Collets

for external clamping



clamp ring for
machining, included



Material:

High-strength aluminium alloy

Version:

blue anodised.

Sample order:

K1184.1065

Note:

Collets for clamping external contours.

The contour of the workpiece to be held is machined into the collet. Free-form and asymmetrical contours can be held.

The collet mechanism enables a secure clamping of the workpiece.

Clamping travel per collet segment (8x) max. 0.15 mm.

Workpiece repeat accuracy: ± 0.03 .

Collet repeat accuracy: ± 0.02 .

Matching adaptor K1183.

KIPP Collets for external clamping

Order No.	D	D1	D2	D3	D4	H	H1	H2	H3
K1184.1065	65	21	M8	M5	20	29	25	10	4
K1184.1090	90	25	M10	M6	24	40	35	15	5
K1184.1120	120	25	M10	M6	24	46	40	20	5
K1184.1160	160	29	M12	M8	28	52	45	25	6

Collets

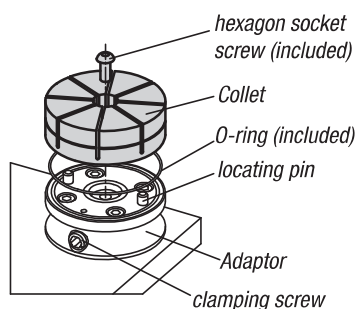
for external clamping

1. Mounting collet:

- Insert an O-ring into the groove on the top face of the clamp base.
- Set a collet on the base making sure the locating pins fit into the locating holes on the underside of the collet. Secure the collet using a buttonhead hex socket screw.

Note:

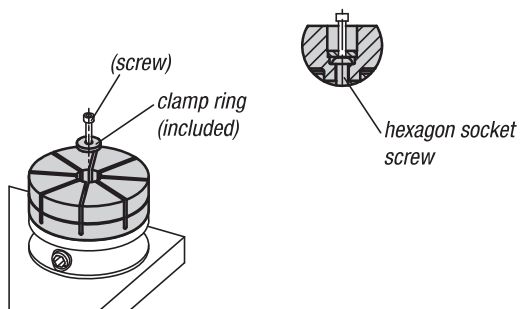
Before mounting the collet, ensure the cam cylinder is fully loosened by turning the tightening screw clockwise until it stops.



2. Machining collet:

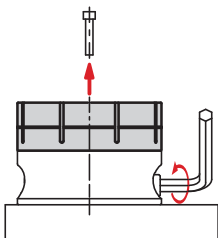
2.1

Place the clamp ring in the centre of the collet. (Use a screw as an insertion aid)



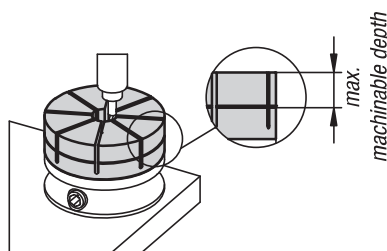
2.2

Tighten the cam cylinder to clamp the clamp ring (recommended torque: 15Nm). Remove the screw from the clamp ring before machining.



2.3

Machine the contour of the part that is to be held into the collet.

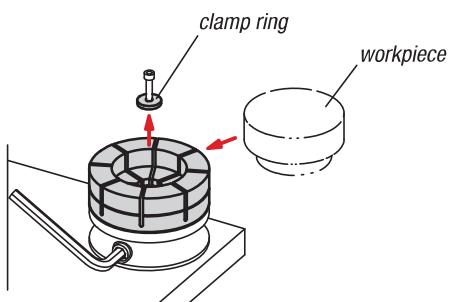


Note:

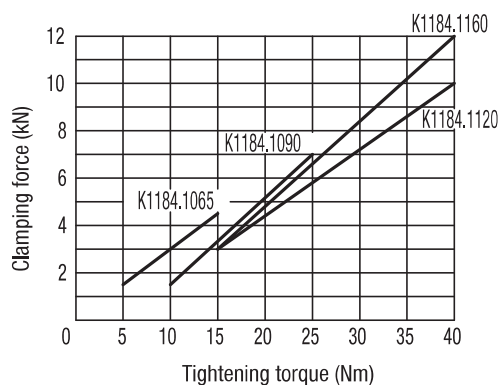
Do not machine the contour deeper than the permitted depth.

3. Mounting workpiece:

- Loosen the cam cylinder and remove the clamp ring.
- Place the workpiece in the contour and re-tighten the cam cylinder.



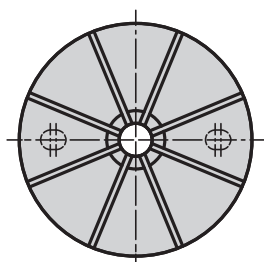
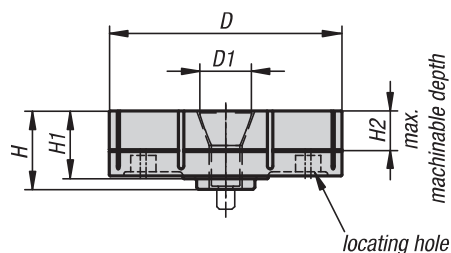
Performance curve



To avoid damaging the collet do not tighten the clamp without a workpiece or clamp ring. Observe the maximum tightening torque in the table.

Collets

for internal clamping



KIPP Collets for internal clamping

Order No.	D	D1	H	H1	H2
K1184.2065	65	22,5	28,5	25	10
K1184.2090	90	27	34,5	30	15
K1184.2120	120	29	40,5	35	20
K1184.2160	160	33	46,5	40	25



Material:

High-strength aluminium alloy

Version:

natural colour anodized

Sample order:

K1184.2065

Note:

Collets for clamping internal contours.

The contour of the workpiece to be held is machined into the collet. Free-form and asymmetrical contours can be held.

The collet mechanism enables a secure clamping of the workpiece.

Clamping travel per collet segment (8x) max. 0.15 mm.

Workpiece repeat accuracy: ± 0.03 .

Collet repeat accuracy: ± 0.02 .

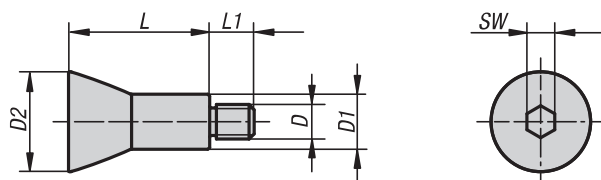
The traction cone K1185 is required when using the collet for internal clamping.

Matching adaptor K1183.

K1185

Traction cone

for internal clamping collet



Material:

Carbon steel.

Version:

hardened and nickel-plated.

Sample order:

K1185.0829

Note:

The traction cone is required for the collet for internal clamping.

KIPP Traction cone for internal clamping collet

Order No.	D	D1	D2	L	L1	SW
K1185.0829	M8	13,2	22,5	29	10	6
K1185.1035	M10	16	27	35	11	8
K1185.1041	M10	16	29	41	13	8
K1185.1247	M12	18	33	47	14	10

Collets

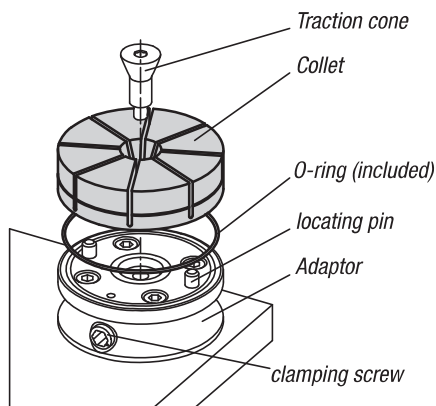
for internal clamping

1. Mounting collet:

- Insert an O-ring into the groove on the top face of the clamp base.
- Set a collet on the base making sure the locating pins fit into the locating holes on the underside of the collet.
- Secure the collet using a tapered screw.

Note:

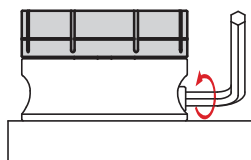
Before mounting the collet, ensure the cam cylinder is fully loosened by turning the tightening screw clockwise until it stops.



2. Machining collet:

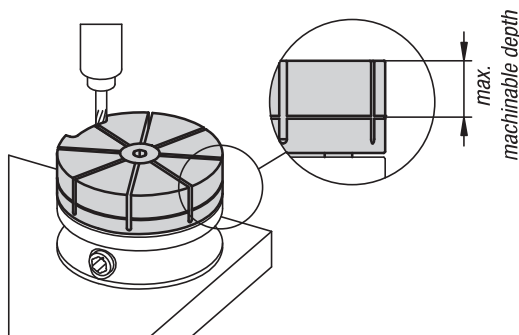
2.1

Fully loosen the cam cylinder and measure the OD of the collet. Tighten the cam cylinder until the collet OD has expanded by 0.15 mm.



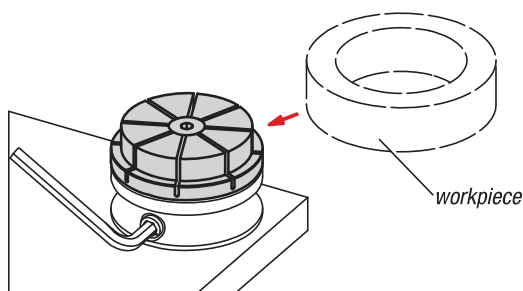
2.2

Machine the contour of the part that is to be held into the collet.

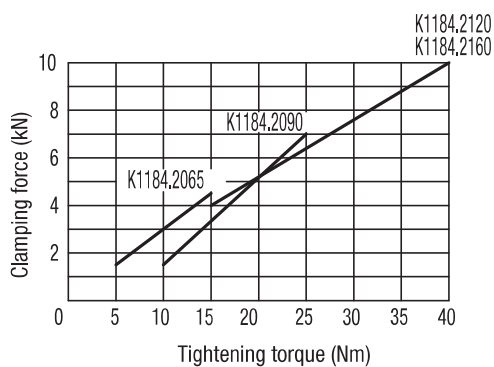


3. Mounting workpiece:

- Loosen the cam cylinder and remove the clamp ring.
- Place the workpiece in the contour and re-tighten the cam cylinder.

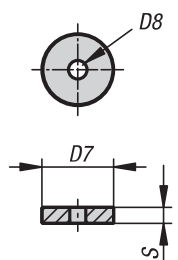
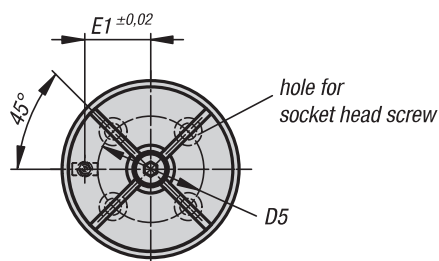


Performance curve

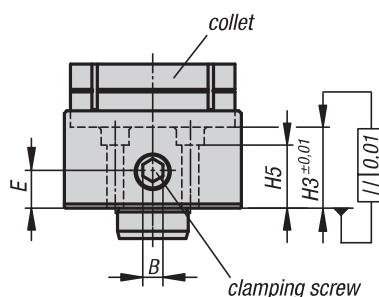
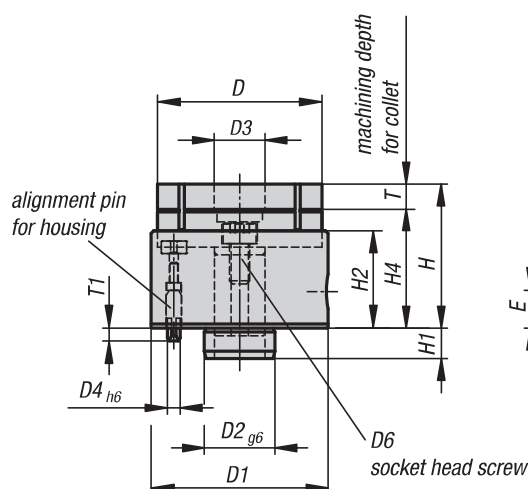


To avoid damaging the collet do not tighten the clamp without a workpiece or clamp ring.
Observe the maximum tightening torque in the table.

Clamping collets machinable



clamp ring for machining, included



Material:

Housing and clamping ring carbon steel 1.0503.
Locating pins carbon steel 1.7220.
Collet aluminium 3.4365.

Version:

Housing, locating pins and clamping ring black oxidised.
Collet blue anodized.

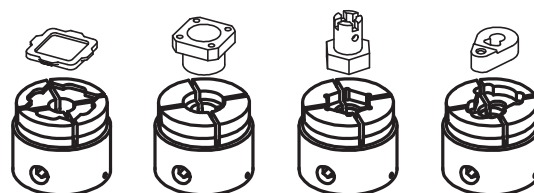
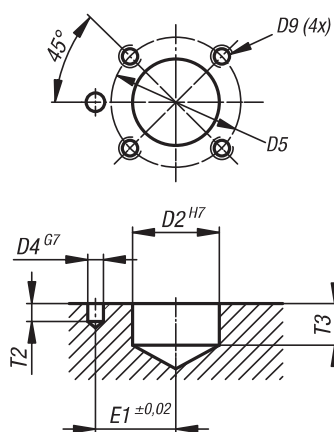
Sample order:

K0934.065057

Note:

Do not tighten the clamping screw without the clamping ring or a workpiece in the collet.
Tighten the clamping screw on the side to clamp the workpiece around its circumference.
The collet can be machined to suit the contour of the workpiece.
Ideal clamping element for machining workpieces on machining centres, milling centres, 5-axis machines, etc.

mounting hole pattern

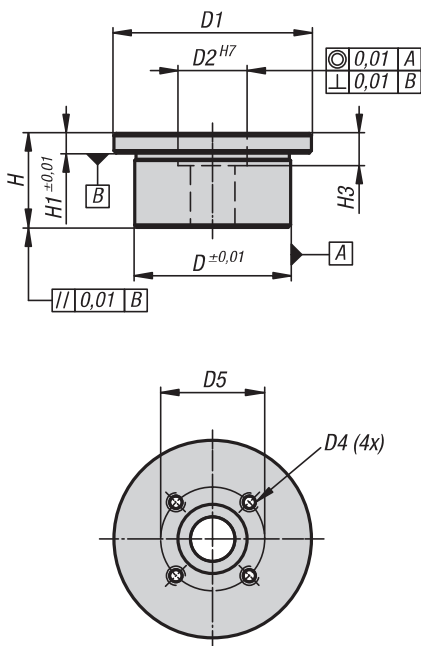


KIPP Clamping collets machinable

Order No.	B	D	D1	D2	D3	D4	D5	D6	D7	D8	D9	E	E1	H	H1	H2	H3	H4	H5	T	T1	T2	T3	S	Clamping force N	Tightening torque max. Nm	Order No. Collet
K0934.065057	8	65	70	28	19	6	42	M8x15	18	M4	M6	15	26	59,5	12	39	34,5	47	25	10	5	6	13	4	4000	60	K0934.065025
K0934.090072	10	90	95	42	23	8	60	M10x20	22	M5	M8	17	36	72,5	14	46	38,5	57	28	15	7	8	15	6	6000	100	K0934.090034

Mounting plates

for clamping collets



Material:

Carbon steel 1.7262.

Version:

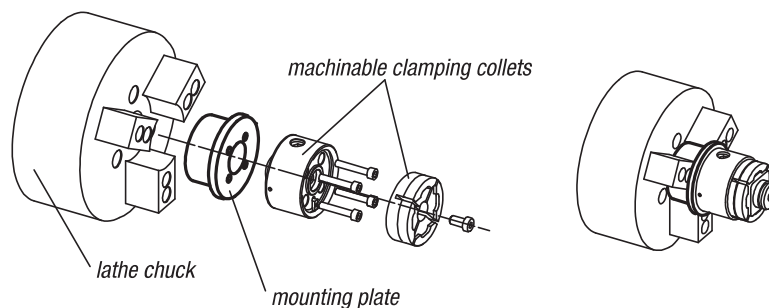
Black oxidised and case-hardened.

Sample order:

K0934.065038

Note:

Suitable for clamping collets
K0934.065057 and K0934.090072.

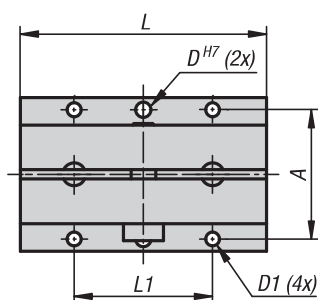
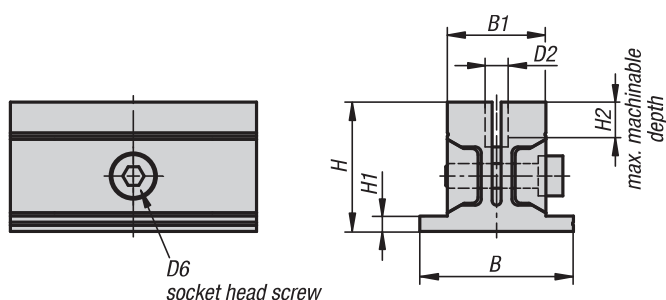


Mounting plate for holding the collet in a lathe chuck

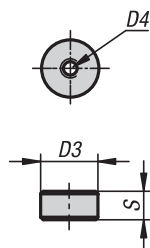
KIPP Mounting plates for clamping collets

Order No.	D	D1	D2	D4	D5	H	H1	H3
K0934.065038	63	80	28	M6x12	42	38	8	13
K0934.090043	80	100	42	M8x16	60	43	8	15

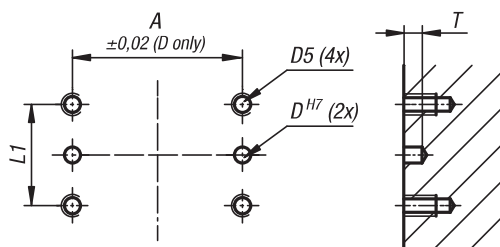
Machinable jaws rectangular



clamp ring for
machining, included



installation dimensions



Material:

Body aluminium.

Wedges carbon steel.

Version:

Body natural colour anodised.

Wedges black oxidised.

Sample order:

K1169.32040

Note:

The lateral clamping screw tightens the jaws and clamps the workpiece on the circumference.

The simple and compact design allows 2 workpieces to be clamped.

The clamping travel is max. 0.5 mm.

The jaws must be pre-tensioned before machining the contour, the supplied clamping ring is used for this purpose.

KIPP Machinable jaws, rectangular

Order No.	A	B	B1	D	D1	D2	D3	D4	D5	D6	H	H1	H2	L	L1	S	T	Clamping force N	Tightening torque Nm
K1169.32040	42	50	32	5	4,5	7,4	7	M3x0,5	M4x0,7	M6	42	5	10	40	25	3,5	5	2500	7,5
K1169.32080	42	50	32	5	4,5	7,7	7	M3x0,5	M4x0,7	M8	42	5	10	80	45	3,5	5	2500	14
K1169.50050	62	72	50	6	5,5	11,4	11	M3x0,5	M5x0,8	M10	63	7	15	50	30	5,5	8	5500	26
K1169.50100	62	72	50	6	5,5	11,4	11	M3x0,5	M5x0,8	M12	63	7	15	100	58	5,5	8	5500	46

Machinable jaws rectangular

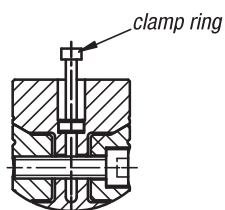
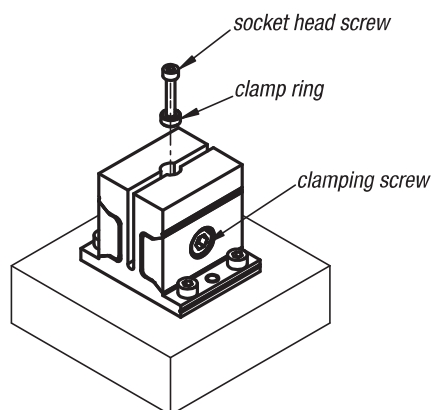
Machining the jaws:

1. Inserting the clamp ring:

Insert the clamp ring into the bore in the centre of and between the jaws.

Tighten the clamp screw to hold the clamp ring in place.

(Use a cap screw to aid inserting the clamp ring)



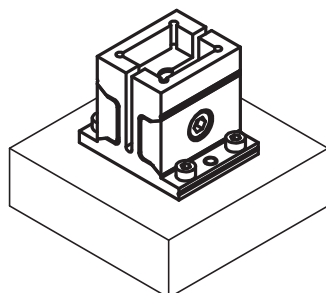
Note:

The clamp ring must be placed at the bottom of the bore.

2. Machine the jaws:

Remove the cap screw from the clamp ring.

Machine the contour of the workpiece to be held into the jaws.



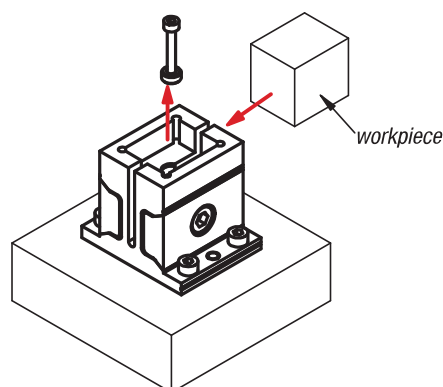
Note:

The contour should not be deeper than the max. permitted depth.

3. Mounting the workpiece:

Loosen the clamp screw and remove the clamp ring.

Place the workpiece into the contour and tighten the clamp screw.



Applications

