

# An APC from Albrecht

**At present APC is the best performing chuck worldwide in the area of speed, tool life and safety.**

HSK50, HSK63, HSK80, HSK100, HSK125, SK30, SK40, SK50, BT30, BT40, BT50, PSC50, PSC63, PSC80, BT40 and BT50 with additional face contact.

# The Slim5

**The power for 5-axis operation. Achieve anything safely and with speed.**

Clamping range 2-14 mm or 2-20 mm.  
Slim Front, gage length= 120 mm (HSK63 + BT40).  
No tool pull-out due to pin-lock collets.  
Extremely slim tapered, 4,5°.  
High accuracy and dampening.  
Optimal power transmission.  
100% leak proof and up to 100 bars also with internal coolant supply for the tools.  
Ultimate additional cooling and rinsing effect due to peripheral cooling.

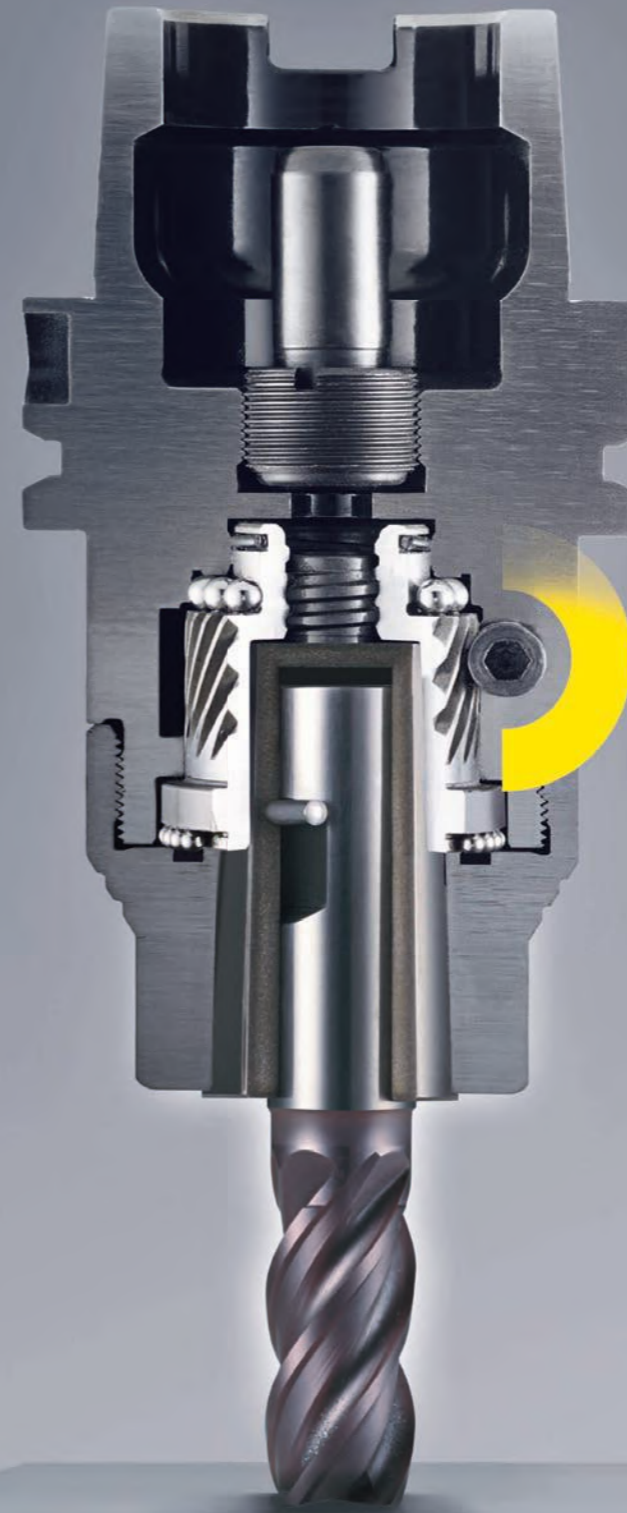


# These wins have reasons.

**1.** The world's only Milling Chuck with 1:16 worm gear.

Patent no. 1206990.  
The only way how 100% holding force gets to the cutting tool.

**2.** Highest rigidity thanks to design and body.



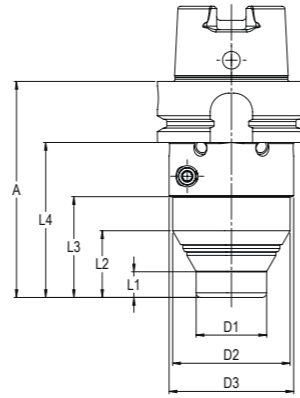
**3.** The worm gear with 3 tons traction force and the collet with a slow-taper angle of 1,25° do guide the tool perfectly through trochoidal-, dry- and hard-machining operations up to 110° C.

**4.** Ideal dampening. The collet-cone assemblage absorbs virtually all vibrations. Measuring portfolio from Institut for Produktionsmanagement and -technic Technische Universität Hamburg see page 74 - 75

# HSK

## Precision Chucks APC, DIN 69893 (DIN ISO 12164) with fine balancing holes 6xM6

Easy exchange of tools by setting of hex-key (see page 41). Maintenance free.  
Sealed against coolant and contamination. Slow collet taper angle. Collet  
with special coating (see page 26 – 39). System-Runout-Accuracy 3 µm at 2,5 x D.  
Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB,  
HA as well as HE up to D = 20 mm.



HSK50 A		2 – 14 mm									
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
101	300 014Z 650 0	A	11	28	43	75	30	50	53	20.000 G=2,5	1,1
HSK63 A											
92	300 014Z 663 0	A	11	28	43	66	30	50	53	20.000 G=2,5	1,3



HSK50 A		2 – 14 mm									
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
187	300 214Z 650 0	A	85	103	142	161	30	50	53	20.000 G=2,5	1,9
HSK63 A											
142	300 514Z 663 0	A	61	78	93	116	30	50	53	20.000 G=2,5	1,5
178	300 214Z 663 0	A	85	103	129	152	30	50	53	20.000 G=2,5	1,9



HSK50 A		2 – 20 mm									
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
101	300 120Z 650 0	A	20	31	56	75	40	53		20.000 G=2,5	1,1
HSK63 A											
92	300 120Z 663 0	A	20	31		66	40	53		20.000 G=2,5	1,3
HSK63 F											
92	300 120F 663 0*	F	20	31		66	40	53		20.000 G=2,5	1,3
HSK80 A											
98	300 120Z 680 0	A	18	38		72	40	63		20.000 G=2,5	1,8
HSK100 A											
100	300 020Z 610 0	A	18	38	43	71	40	63	70	20.000 G=2,5	3,8



\*Delivery includes sealing plug in HSK

HSK63 A		2 – 20 mm									
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
142	300 520Z 663 0	A	69	81		116	40	53		20.000 G=2,5	1,7
178	300 220Z 663 0	A	94	105		152	40	53		20.000 G=2,5	2,0
HSK100 A											
150	300 820Z 610 0	A	48	68	93	121	40	63	70	20.000 G=2,5	4,2
186	300 920Z 610 0	A	84	104	129	157	40	63	70	20.000 G=2,5	4,5



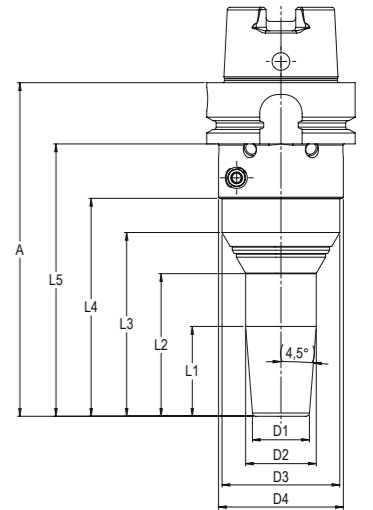
HSK63 A		16 – 32 mm									
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
132	300 025Z 663 0	A	90	106			63			20.000 G=2,5	2,2
HSK80 A											
137	300 025Z 680 0	A	111				63			20.000 G=2,5	2,5
HSK100 A											
139	300 025Z 610 0	A	110				70			20.000 G=2,5	4,7
HSK125 A											
145	300 025Z 612 0	A	116				70			20.000 G=2,5	6,0



# Slim5

## Precision Chucks APC, DIN 69893 (DIN ISO 12164) with fine balancing holes 6xM6

Slim line with 4,5° especially for 5-axis operations. Easy exchange of tools by setting of  
hex-key (see page 41). Maintenance free. Sealed against coolant and contamination.  
Slow collet taper angle. Collet with special coating (see page 26 – 39). System-Runout-  
Accuracy 3 µm at 2,5 x D. Clamping of tool shanks according to DIN 1835 A, B and  
DIN 6535 HB, HA as well as HE up to D = 20 mm.



HSK63 A Slim 5		2 – 14 mm											
A	Part.No.	Form	L1	L2	L3	L4	L5	D1	D2	D3	D4	Balanced	kg
120	300 414Z 663 0	A		38	56	71	94	24	30	50	53	20.000 G=2,5	1,4
142	300 414Z 663 1	A	38	61	78	93	116	24	30	50	53	20.000 G=2,5	1,5



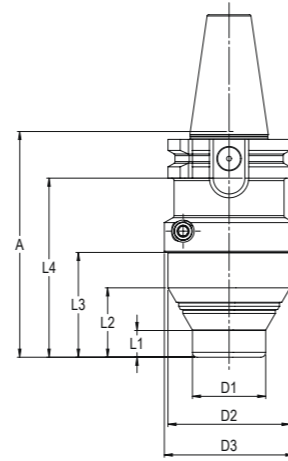
HSK63 A Slim 5		2 – 20 mm											
A	Part.No.	Form	L1	L2	L3	L4	L5	D1	D2	D3	D4	Balanced	kg
120	300 420Z 663 0	A		44	54	71	94	32	39	50	53	20.000 G=2,5	1,5
142	300 420Z 663 1	A	51	69	78	93	116	32	40	50	53	20.000 G=2,5	1,6



# SK

## Precision Chucks APC, ISO 7388-1 (DIN 69871)

Easy exchange of tools by setting of hex-key (see page 41). Maintenance free. Sealed against coolant and contamination. Slow collet taper angle. Collet with special coating (see page 26 – 39). System-Runout-Accuracy 3 µm at 2,5 x D. Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.



## SK30 2–14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
92	300 014Z 230 0	A/AD	11	28		73	30	50	53	20.000 G=2,5	1,0

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
63	300 014Z 240 0	A/AD	11	28		43	30	50		20.000 G=2,5	1,1

## SK30 2–14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
142	300 514Z 230 0	A/AD	61	78		123	30	50	53	20.000 G=2,5	1,4

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
112	300 514Z 240 0	A/AD	61	78		93	30	50		20.000 G=2,5	1,3
149	300 914Z 240 0	A/AD	85	103		129	30	50		20.000 G=2,5	1,7

## SK30 2–20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
92	300 120Z 230 0	A/AD	20	28		73	40	53		20.000 G=2,5	1,1

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
63	300 020Z 240 0	A/AD	20	28		43	40	50		20.000 G=2,5	1,1

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
62	300 020Z 250 0	A/AD	18	38		43	40	63		20.000 G=2,5	3,1

## SK40 2–20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
112	300 520Z 240 0	A/AD	69	78		93	40	50		20.000 G=2,5	1,6
149	300 920Z 240 0	A/AD	94	103		129	40	50		20.000 G=2,5	1,9

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
112	300 820Z 250 0	A/AD	48	68		93	40	63		20.000 G=2,5	3,5
149	300 920Z 250 0	A/AD	84	104		129	40	63		20.000 G=2,5	3,8



## SK40

16 – 32 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
102	300 025Z 240 0	A/AD	*			83	63			20.000 G=2,5	2,1

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
102	300 025Z 250 0	A/AD				83	70			20.000 G=2,5	4,3

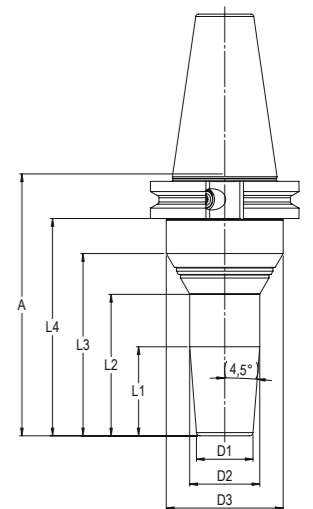
\* without Safety Zone, with Safety Zone see Part. No. 300 025Z 240 1 (on request).



# Slim5

## Precision Chucks APC, ISO 7388-1 (DIN 69871)

Slim line with 4,5° especially for 5-axis operations. Easy exchange of tools by setting of hex-key (see page 41). Maintenance free. Sealed against coolant and contamination. Slow collet taper angle. Collet with special coating (see page 26 – 39). System-Runout-Accuracy 3 µm at 2,5 x D. Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.



## SK40 Slim5 2–14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
91	300 414Z 240 0	A/AD		38	56	71	24	30	50	20.000 G=2,5	1,2

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
112	300 414Z 240 1	A/AD	38	61	78	93	24	30	50	20.000 G=2,5	1,3



## SK40 Slim5 2–20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
91	300 420Z 240 0	A/AD		44	54	71	32	39	50	20.000 G=2,5	1,3

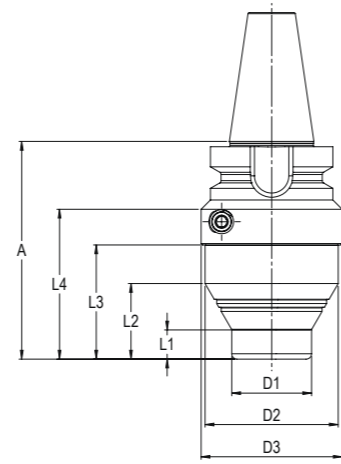
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
112	300 420Z 240 1	A/AD	51	69	78	93	32	40	50	20.000 G=2,5	1,4



# MAS-BT

## Precision Chucks APC, ISO 7388-2 (JIS B 6339)

Easy exchange of tools by setting of hex-key (see page 41). Maintenance free. Sealed against coolant and contamination. Slow collet taper angle. Collet with special coating (see page 26 – 39). System-Runout-Accuracy 3 µm at 2,5 x D. Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.



## BT30 2 – 14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
82	300 014Z 430 0	A/AD	11	28	43	56	30	50	53	20.000 G=2,5	0,9

BT40											
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
70	300 014Z 440 0	A/AD	11	28		43	30	50		20.000 G=2,5	1,2

## BT40 2 – 14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
120	300 514Z 440 0	A/AD	61	78		93	30	50		20.000 G=2,5	1,5
156	300 914Z 440 0	A/AD	85	103		129	30	50		20.000 G=2,5	2,0

## BT30 2 – 20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
82	300 120Z 430 0	A/AD	20	31		56	40	53		20.000 G=2,5	0,9

BT40											
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
70	300 020Z 440 0	A/AD	18	38			40	63		20.000 G=2,5	1,4

BT50											
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
81	300 020Z 450 0	A/AD	18	38		43	40	63		20.000 G=2,5	4,2

## BT40 2 – 20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
120	300 520Z 440 0	A/AD	48	68			40	63		20.000 G=2,5	1,8
156	300 920Z 440 0	A/AD	84	104			40	63		20.000 G=2,5	2,1

BT50											
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
131	300 820Z 450 0	A/AD	48	68		93	40	63		20.000 G=2,5	4,6
167	300 920Z 450 0	A/AD	84	104		129	40	63		20.000 G=2,5	4,9



## BT40

16 – 32 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
110	300 025Z 440 0	A/AD					63			20.000 G=2,5	2,4

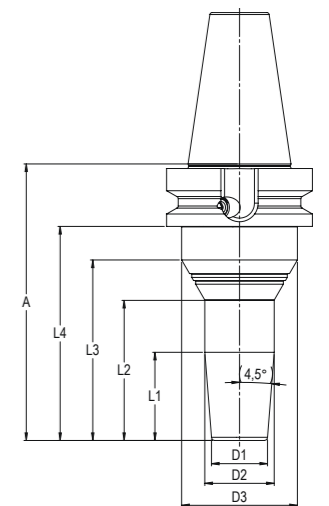
BT50											
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
121	300 025Z 450 0	A/AD				83	70			20.000 G=2,5	4,6



# Slim5

## Precision Chucks APC, ISO 7388-2 (JIS B 6339)

Slim line with 4,5° especially for 5-axis operations. Easy exchange of tools by setting of hex-key (see page 41). Maintenance free. Sealed against coolant and contamination. Slow collet taper angle. Collet with special coating (see page 26 – 39). System-Runout-Accuracy 3 µm at 2,5 x D. Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.



## BT40 Slim5 2 – 14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
98	300 414Z 440 0	A/AD		38	56	71	24	30	50	20.000 G=2,5	1,4
120	300 414Z 440 1	A/AD	38	61	78	93	24	30	50	20.000 G=2,5	1,5



## BT40 Slim5 2 – 20 mm

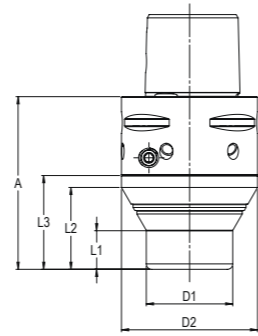
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
98	300 420Z 440 0	A/AD		44	54	71	32	39	50	20.000 G=2,5	1,5
120	300 420Z 440 1	A/AD	51	69	78	93	32	40	50	20.000 G=2,5	1,6



# Polygon

## Precision Chucks APC, DIN ISO 26623-1 with fine balancing holes 6xM6

Easy exchange of tools by setting of hex-key (see page 41). Maintenance free. Sealed against coolant and contamination. Slow collet taper angle. Collet with special coating (see page 26 – 39). System-Runout-Accuracy 3 µm at 2,5 x D. Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.



### PSC 63 2 – 14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
80	300 014Z 9C6 0	A	11	28	43		30	50		20.000 G=2,5	1,3



### PSC 50 2 – 14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
127	300 514Z 9C5 0*	A	61	78	93		30	50	53	20.000 G=2,5	1,0



### PSC 63

130	300 814Z 9C6 0	A	61	78	93		30	50		20.000 G=2,5	1,5
166	300 914Z 9C6 0	A	85	103	129		30	50		20.000 G=2,5	2,0

\*without balancing holes

### PSC 50 2 – 20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
78	300 120Z 9C5 0*	A	20	31			40	53		20.000 G=2,5	0,9

### PSC 63

80	300 020Z 9C6 0	A	18	38			40	63		20.000 G=2,5	1,4
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### PSC 80

90	300 020Z 9C8 0	A	18	38	43		40	63		20.000 G=2,5	3,3
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\*without balancing holes

### PSC 63 2 – 20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
130	300 820Z 9C6 0	A	47	68			40	63		20.000 G=2,5	1,6
166	300 920Z 9C6 0	A	84	104			40	63		20.000 G=2,5	2,2

### PSC 80

140	300 820Z 9C8 0	A	47	68	93		40	63		20.000 G=2,5	3,5
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### PSC 63

16 – 32 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
119	300 025Z 9C6 0	A					63			20.000 G=2,5	2,4

### PSC 80

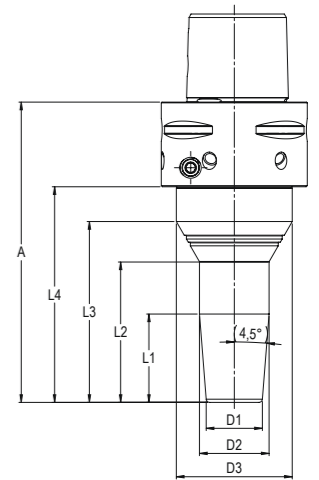
129	300 025Z 9C8 0	A	83				70			20.000 G=2,5	3,8
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# Slim5

## Precision Chucks APC, DIN ISO 26623-1 with fine balancing holes 6xM6

Slim line with 4,5° especially for 5-axis operations. Easy exchange of tools by setting of hex-key (see page 41). Maintenance free. Sealed against coolant and contamination. Slow collet taper angle. Collet with special coating (see page 26 – 39). System-Runout-Accuracy 3 µm at 2,5 x D. Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.



### PSC 63 Slim5 2 – 14 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
108	300 414Z 9C6 0	A		38	56	71	24	30	50	20.000 G=2,5	1,5
130	300 414Z 9C6 1	A	38	61	78	93	24	30	50	20.000 G=2,5	1,6



### PSC 63 Slim5 2 – 20 mm

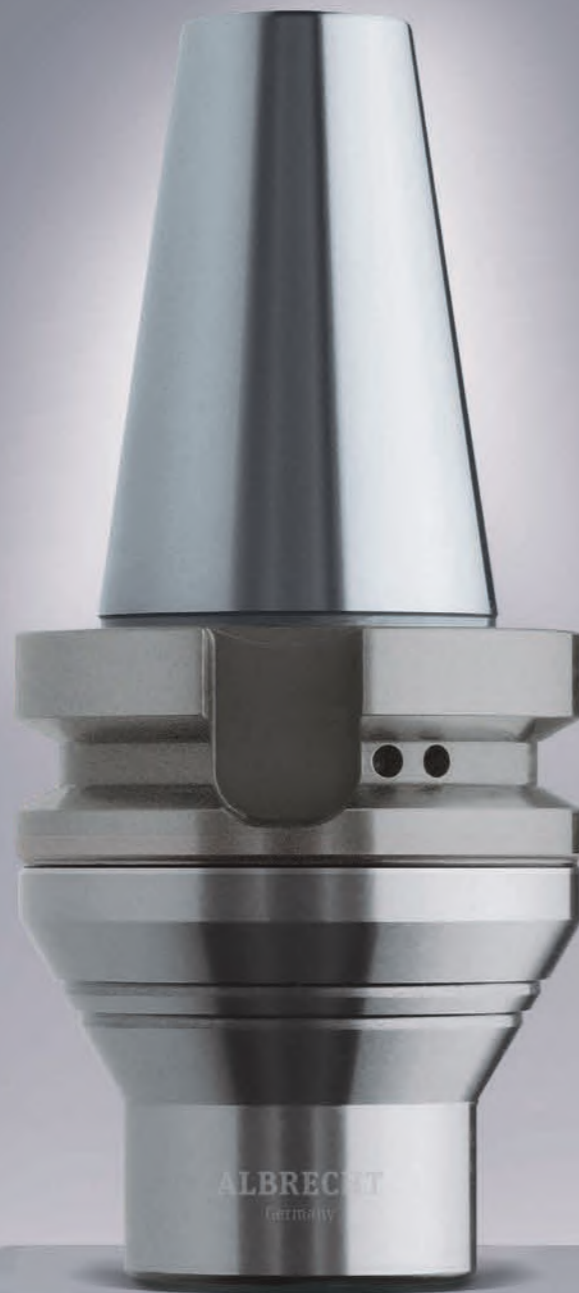
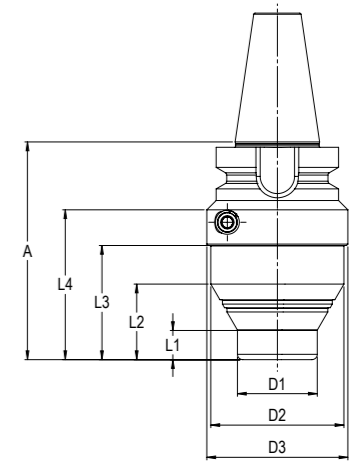
A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
108	300 420Z 9C6 0	A		44	54	71	32	39	50	20.000 G=2,5	1,6
130	300 420Z 9C6 1	A	51	69	78	93	32	40	50	20.000 G=2,5	1,7



# BT\*

## Precision Chucks APC, ISO 7388-2 with additional Flange contact.

Easy exchange of tools by setting of hex-key (see page 41). Maintenance free. Sealed against coolant and contamination. Slow collet taper angle. Collet with special coating (see page 26 – 39). System-Runout-Accuracy 3 µm at 2,5 x D. Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.



### BT30\*

2 – 20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
81	300 120Z 43P 0	A/AD	20	31		56	40	53		20.000 G=2,5	1,2

### BT40\*

69	300 020Z 44P 0	A/AD	18	38			40	63		20.000 G=2,5	1,4
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### BT50\*

80	300 020Z 45P 0	A/AD	18	38		43	40	63		20.000 G=2,5	4,2
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### BT40\*

2 – 20 mm

A	Part.No.	Form	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
119	300 820Z 44P 0	A/AD	48	68			40	63		20.000 G=2,5	1,8

### BT50\*

129	300 820Z 45P 0	A/AD	48	68		93	40	63		20.000 G=2,5	4,6
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# High-End

## Chuck for fine machining

This two-piece design consists of a compensating adapter and a compensating chuck. It permits an adjustment of tools to the  $\mu\text{m}$ , especially for long tools and projection lengths. Ideal for high precision reaming and drilling. Axial and radial adjustment is done with different setting screws. Another 6 screws are used for fine balancing. Suitable for inner coolant flow up to a pressure of 80 bar by using a small adapter sleeve between comparison adapter and chuck. The total length (gage-length) is an addition of L1 (adapter) and L4 (chuck). For more information on the handling and  $\mu$ -precise adjustment see [www.albrecht-germany.com](http://www.albrecht-germany.com)



## Compensating Chuck APC

Easy exchange of tools by setting of hex-key (see page 41). Maintenance free. Sealed against coolant and contamination. Slow collet taper angle. Collet with special coating (see page 26 – 39). Clamping of tool shanks according to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to  $D = 20 \text{ mm}$ . Coolant tubes see page 69.

## Compensating Adapter

### HSK63-Form A

Modul	Part.No.	d	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
70	300 M76Z 663 0	70	60								1,3
80	300 M86Z 663 0	80	60								1,4
100	300 M16Z 663 0	100	65								1,9

### HSK100-Form A

Modul	Part.No.	d	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
70	300 M76Z 610 0	70	55								1,6
80	300 M86Z 610 0	80	55								2,8
100	300 M16Z 610 0	100	65								3,7



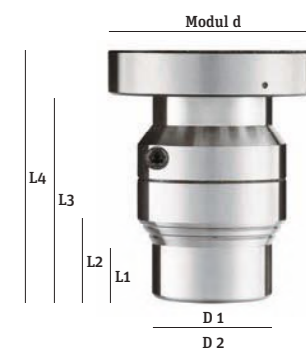
## Compensating Chuck

2 – 20 mm

Modul	Part.No.	d	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
70	300 120Z M76 0	70	20	31	72	87	40	53	-		1,1
80	300 120Z M86 0	80	20	31	56	73	40	53	-		1,3

16 – 32 mm

Modul	Part.No.	d	L1	L2	L3	L4	D1	D2	D3	Balanced	kg
100	300 025Z M16 0	100	83	-	97	118	63	-	-		3,1



## Adapter sleeve for inner coolant flow

Modul	Part.No.	O-Ring
all	139 5004 001 0	17x1,5

# Collets



# Overview

**Page 21-22**

**Collets Peripheral Coolant**

Additional cooling and rinsing effect.  
Increases the safety of processing.



**Page 23-24**

**Collets Coolant 2.0**

With additional channels for peripheral  
cooling directly on the tool shank.



**Page 25-26**

**Collets Internal Coolant**

For tools with internal coolant.  
100% leak proof up to 100 bar coolant pressure.



**Page 27-30**

**Collets Pin-Lock**

Mechanical pull stop solution in  
combination with side lock shanks (Weldon)



**Page 31-32**

**Minimum-Quantity-Lubrication MQL**

Set for collets with internal coolant.  
For 1- and 2-Channel-Systems.



# APC collet with peripheral cooling

## APC collet with peripheral cooling

Additional cooling and rinsing effect. Increases the safety of processing. Constant coolant flow of 14-16 litre/min at 50 bar coolant pressure up to D = 20 mm through the slots of the collet. Special coating. Maintenance free. Integrated, fine adjustable length stop with access from both sides. Clamping of tool shanks corresponding to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.

## Collet APC14

2 – 14 mm

D	Coolant	Part.No.	kg
2	Periphery	136 1402 000 0	0,10
3	Periphery	136 1403 000 0	0,10
4	Periphery	136 1404 000 0	0,10
5	Periphery	136 1405 000 0	0,10
6	Periphery	136 1406 000 0	0,09
7	Periphery	136 1407 000 0	0,09
8	Periphery	136 1408 000 0	0,09
9	Periphery	136 1409 000 0	0,08
10	Periphery	136 1410 000 0	0,08
11	Periphery	136 1411 000 0	0,07
12	Periphery	136 1412 000 0	0,07
14	Periphery	136 1414 000 0	0,05



## Collet APC20

2 – 20 mm

D	Coolant	Part.No.	kg
2	Periphery	136 2002 000 0	0,17
3	Periphery	136 2003 000 0	0,17
4	Periphery	136 2004 000 0	0,17
5	Periphery	136 2005 000 0	0,17
6	Periphery	136 2006 000 0	0,17
8	Periphery	136 2008 000 0	0,16
9	Periphery	136 2009 000 0	0,16
10	Periphery	136 2010 000 0	0,15
11	Periphery	136 2011 000 0	0,15
12	Periphery	136 2012 000 0	0,15
13	Periphery	136 2013 000 0	0,14
14	Periphery	136 2014 000 0	0,13
15	Periphery	136 2015 000 0	0,12
16	Periphery	136 2016 000 0	0,10
17	Periphery	136 2017 000 0	0,10
18	Periphery	136 2018 000 0	0,08
20	Periphery	136 2020 000 0	0,06



## Collet APC25

16 – 32 mm

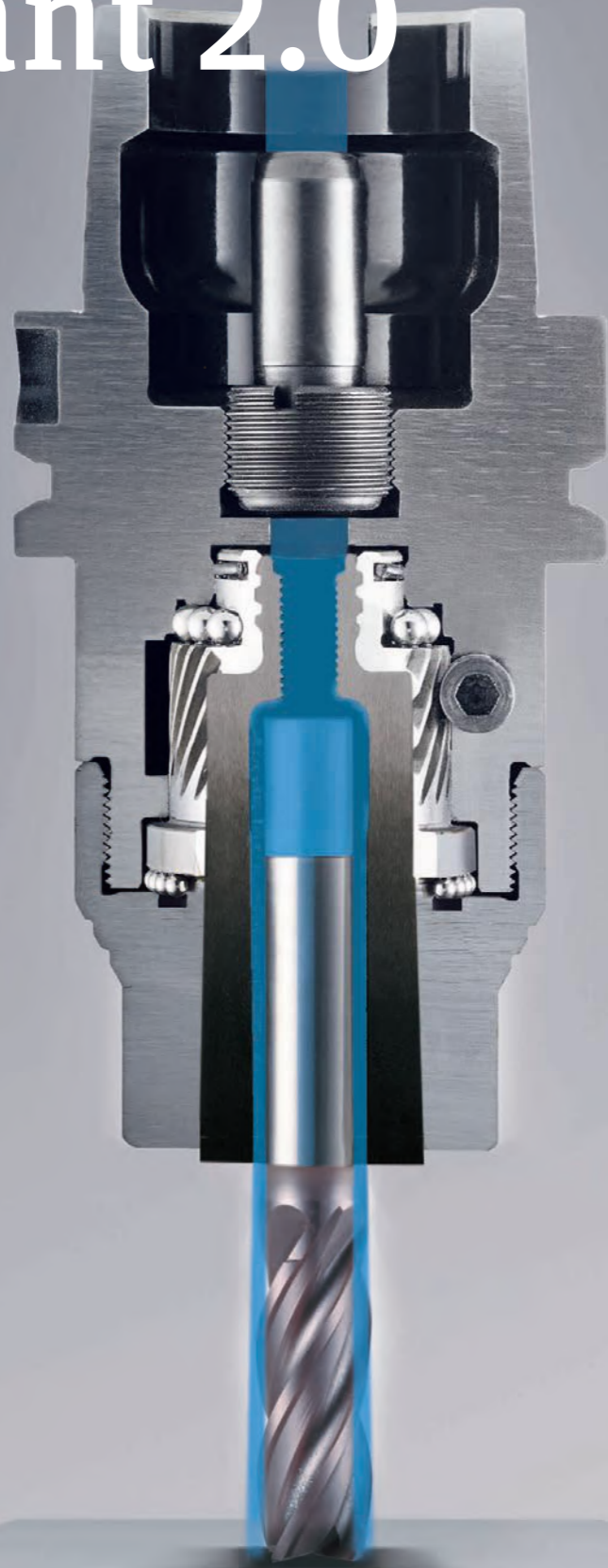
D	Coolant	Part.No.	kg
16	Periphery	136 2516 000 0	0,50
18	Periphery	136 2518 000 0	0,45
20	Periphery	136 2520 000 0	0,42
22	Periphery	136 2522 000 0	0,40
25	Periphery	136 2525 000 0	0,34
32	Periphery	136 2532 000 0	0,22



\* Special size and inch diameter on request

# Collets with Coolant 2.0

Coolant stands close to the cutting tool, up to 60% higher MRR and tool life.



## Collet APC14 2 – 14 mm

D	Coolant	Part.No.	kg
6	Coolant 2.0	136 1406 000 P	0,09
8	Coolant 2.0	136 1408 000 P	0,09
10	Coolant 2.0	136 1410 000 P	0,08
12	Coolant 2.0	136 1412 000 P	0,07



## Collet APC14 with Pin-Lock 2 – 14 mm

D	Coolant	Part.No.	kg
8	Coolant 2.0 Pin-Lock	136 1408 OLO P	0,08
10	Coolant 2.0 Pin-Lock	136 1410 OLO P	0,07
12	Coolant 2.0 Pin-Lock	136 1412 OLO P	0,06



## Collet APC20 2 – 20 mm

D	Coolant	Part.No.	kg
6	Coolant 2.0	136 2006 000 P	0,17
8	Coolant 2.0	136 2008 000 P	0,16
10	Coolant 2.0	136 2010 000 P	0,15
12	Coolant 2.0	136 2012 000 P	0,15
14	Coolant 2.0	136 2014 000 P	0,12
16	Coolant 2.0	136 2016 000 P	0,10



## Collet APC20 with Pin-Lock 2 – 20 mm

D	Coolant	Part.No.	kg
10	Coolant 2.0 Pin-Lock	136 2010 OLO P	0,14
12	Coolant 2.0 Pin-Lock	136 2012 OLO P	0,13
14	Coolant 2.0 Pin-Lock	136 2014 OLO P	0,11
16	Coolant 2.0 Pin-Lock	136 2016 OLO P	0,10



\* Special size and inch diameter on request

# APC collet for tools with internal coolant

## APC collet for tools with internal coolant

100% leak proof up to 100 bar coolant pressure.  
Special coating. Maintenance free. Integrated, fine adjustable length stop. Clamping of tool shanks corresponding to DIN 1835 A, B and DIN 6535 HB, HA as well as HE up to D = 20 mm.

## Collet APC14

2 – 14 mm

D	Coolant	Part.No.	kg
2	Central	136 1402 000 T	0,10
3	Central	136 1403 000 T	0,10
4	Central	136 1404 000 T	0,10
5	Central	136 1405 000 T	0,10
6	Central	136 1406 000 T	0,09
7	Central	136 1407 000 T	0,09
8	Central	136 1408 000 T	0,09
9	Central	136 1409 000 T	0,08
10	Central	136 1410 000 T	0,08
11	Central	136 1411 000 T	0,07
12	Central	136 1412 000 T	0,07
14	Central	136 1414 000 T	0,05



## Collet APC20

2 – 20 mm

D	Coolant	Part.No.	kg
2	Central	136 2002 000 T	0,17
3	Central	136 2003 000 T	0,17
4	Central	136 2004 000 T	0,17
5	Central	136 2005 000 T	0,17
6	Central	136 2006 000 T	0,17
8	Central	136 2008 000 T	0,16
9	Central	136 2009 000 T	0,16
10	Central	136 2010 000 T	0,15
11	Central	136 2011 000 T	0,15
12	Central	136 2012 000 T	0,15
13	Central	136 2013 000 T	0,14
14	Central	136 2014 000 T	0,13
15	Central	136 2015 000 T	0,12
16	Central	136 2016 000 T	0,10
17	Central	136 2017 000 T	0,10
18	Central	136 2018 000 T	0,08
20	Central	136 2020 000 T	0,06



## Collet APC25

16 – 32 mm

D	Coolant	Part.No.	kg
16	Central	136 2516 000 T	0,50
18	Central	136 2518 000 T	0,45
20	Central	136 2520 000 T	0,42
22	Central	136 2522 000 T	0,40
25	Central	136 2525 000 T	0,34
32	Central	136 2532 000 T	0,22



\* Special size and inch diameter on request

# Collets with Pin-Lock

## APC collet with mechanical pull stop Pin-Lock

Easy mechanical pull stop solution in combination with side lock (Weldon) shanks corresponding to DIN 6535 HB and DIN 1835 B.

All positive features of APC are kept like runout accuracy and dampening. Special coating. Maintenance free.

Central = for tools with internal coolant. 100% leak proof up to 100 bar coolant pressure.

Periphery = additional cooling and rinsing effect. Increases the safety of processing. Collet is supplied with 3 pins, pin punch, assembly tool. Custom designed. Balanced together with Weldonshaft and pin.



### Positioning tool

Remove the length setting screw, then position the Weldon-clamping surface on the side of the bore. Now insert the tool into the collet until the Weldon-clamping surface lies in the range of the bore.



### Positioning pin

The locking-pin has to be inserted with the help of the pin punch into the bore of the collet up to the block. Caution: The pin must not stick out of the collet.



### Free from backlash

With the assembly tool the length stop screw has to be screwed, so that the cutting tool is free of backlash. Caution: Mounting without axial pressure. The collet with the secured tool can now be placed into the APC chuck (see APC operation manual).

# Collets with Pin-Lock

APC Collet Pin-Lock with 3 pins and assembly tool.

**Collet APC14** 8 – 12 mm

D	Coolant	Part.No.	Balanced	kg
8	Periphery	136 1408 OLO O	no	0,09
10	Periphery	136 1410 OLO O	no	0,08
12	Periphery	136 1412 OLO O	no	0,07



**Collet APC14** 8 – 12 mm

D	Coolant	Part.No.	Balanced	kg
8	Central	136 1408 OLO T	no	0,09
10	Central	136 1410 OLO T	no	0,08
12	Central	136 1412 OLO T	no	0,07



**Collet APC20** 6 – 20 mm

D	Coolant	Part.No.	Balanced	kg
6	Periphery	136 2006 OLO O	yes	0,17
8	Periphery	136 2008 OLO O	yes	0,16
10	Periphery	136 2010 OLO O	yes	0,15
12	Periphery	136 2012 OLO O	yes	0,15
14	Periphery	136 2014 OLO O	yes	0,13
16	Periphery	136 2016 OLO O	yes	0,10
18	Periphery	136 2018 OLO O	no	0,08
20	Periphery	136 2020 OLO O	no	0,07



**Collet APC20** 6 – 20 mm

D	Coolant	Part.No.	Balanced	kg
6	Central	136 2006 OLO T	yes	0,17
8	Central	136 2008 OLO T	yes	0,16
10	Central	136 2010 OLO T	yes	0,15
12	Central	136 2012 OLO T	yes	0,15
14	Central	136 2014 OLO T	yes	0,13
16	Central	136 2016 OLO T	yes	0,10
18	Central	136 2018 OLO T	no	0,08
20	Central	136 2020 OLO T	no	0,07



**Collet APC25** 16 – 32 mm

D	Coolant	Part.No.	Balanced	kg
16	Periphery	136 2516 OLO O	yes	0,50
18	Periphery	136 2518 OLO O	yes	0,45
20	Periphery	136 2520 OLO O	yes	0,42
22	Periphery	136 2522 OLO O	yes	0,40
25	Periphery	136 2525 OLO O	yes	0,34
32	Periphery	136 2532 OLO O	no	0,22



**Collet APC25** 16 – 32 mm

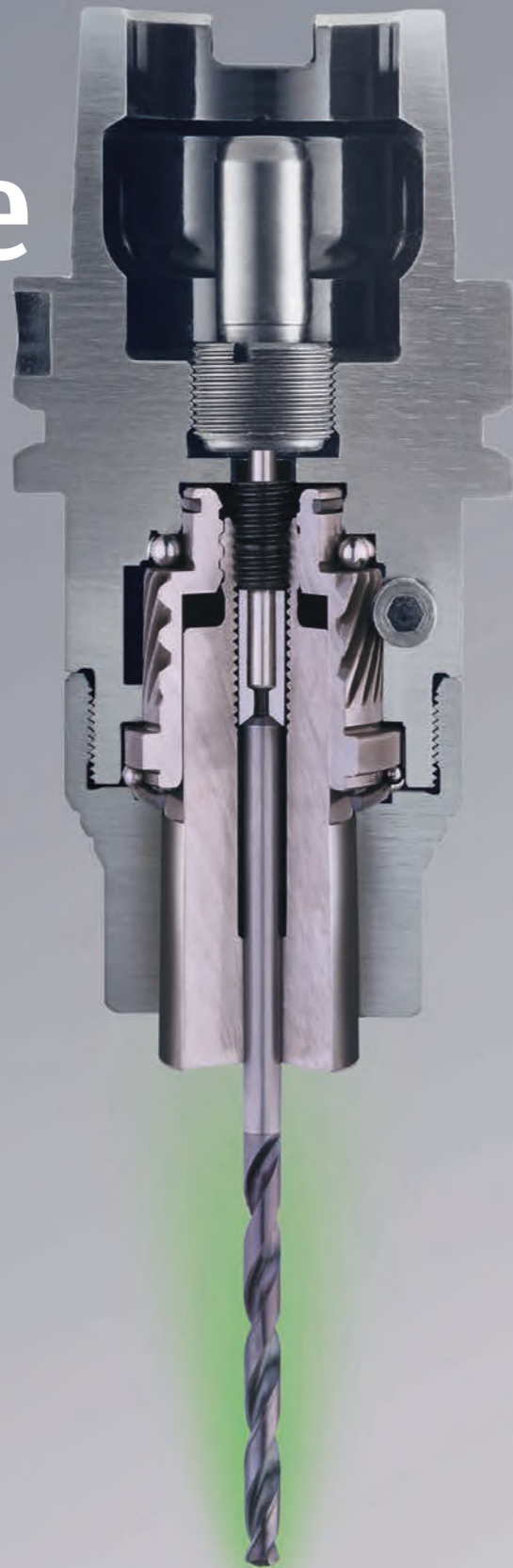
D	Coolant	Part.No.	Balanced	kg
16	Central	136 2516 OLO T	yes	0,50
18	Central	136 2518 OLO T	yes	0,45
20	Central	136 2520 OLO T	yes	0,42
22	Central	136 2522 OLO T	yes	0,40
25	Central	136 2525 OLO T	yes	0,34
32	Central	136 2532 OLO T	no	0,22



# MQL inside

## MQL by Albrecht

Of course the APC Precision Chuck is also available with Minimum-Quantity-Lubrication. For 1- and 2-Channel-systems in combination with internal coolant collets. Please choose your MQL Length screw and Coolant tube alternatively 1- or 2-channel. 100% perfect matched set with MQL conform delivery at the tool shaft end with 90°. Based on MQL company standard. Insertion depth corresponding to DIN 1835 and DIN 6535.



## Albrecht MQL, minimum quantity lubrication

### DIN 69893 HSK 50 Form A (300 014Z 650 0 and 300 120Z 650 0)

Ø	MQL Length screw Part.No.	Coolant tube 1-channel Part.No.	Coolant tube 2-channel Part.No.
4 - 6	132 0004 000 3	139 0008 650 2	139 0004 650 2
8	132 0008 000 3	139 0008 650 2	139 0004 650 2
10	132 0010 000 3	139 0008 650 2	139 0004 650 2
12	132 0012 000 3	139 0008 650 2	139 0004 650 2
14	132 0014 000 3	139 0008 650 2	139 0004 650 2
16	132 0016 000 3	139 0008 650 2	139 0004 650 2
18	132 0018 000 3	139 0008 650 2	139 0004 650 2

### DIN 69893 HSK 63 Form A (300 014Z 663 0 and 300 120Z 663 0)

Ø	MQL Length screw Part.No.	Coolant tube 1-channel Part.No.	Coolant tube 2-channel Part.No.
4 - 6	132 0004 000 3	139 0008 663 2	139 0004 663 2
8	132 0008 000 3	139 0008 663 2	139 0004 663 2
10	132 0010 000 3	139 0008 663 2	139 0004 663 2
12	132 0012 000 3	139 0008 663 2	139 0004 663 2
14	132 0014 000 3	139 0008 663 2	139 0004 663 2
16	132 0016 000 3	139 0008 663 2	139 0004 663 2
18	132 0018 000 3	139 0008 663 2	139 0004 663 2

### DIN 69893 HSK 80 Form A (300 020Z 680 0)

Ø	MQL Length screw Part.No.	Coolant tube 1-channel Part.No.	Coolant tube 2-channel Part.No.
4 - 6	132 0004 000 3	139 0008 680 2	139 0004 680 0
8	132 0008 000 3	139 0008 680 2	139 0004 680 0
10	132 0010 000 3	139 0008 680 2	139 0004 680 0
12	132 0012 000 3	139 0008 680 2	139 0004 680 0
14	132 0014 000 3	139 0008 680 2	139 0004 680 0
16	132 0016 000 3	139 0008 680 2	139 0004 680 0
18	132 0018 000 3	139 0008 680 2	139 0004 680 0

### DIN 69893 HSK 100 Form A (300 020Z 610 0)

Ø	MQL Length screw Part.No.	Coolant tube 1-channel Part.No.	Coolant tube 2-channel Part.No.
4 - 6	132 0004 000 3	139 0008 610 2	139 0004 610 0
8	132 0008 000 3	139 0008 610 2	139 0004 610 0
10	132 0010 000 3	139 0008 610 2	139 0004 610 0
12	132 0012 000 3	139 0008 610 2	139 0004 610 0
14	132 0014 000 3	139 0008 610 2	139 0004 610 0
16	132 0016 000 3	139 0008 610 2	139 0004 610 0
18	132 0018 000 3	139 0008 610 2	139 0004 610 0





# Accessories



Standard Key	Part.No.
with marking approx. 10 Nm	139 0000 905 0



Torque Key	Part.No.
corr. ISO 6789 at 10 Nm	139 0010 900 0
Spare bit 1/4"	139 0000 901 4



for Screwdriver	Part.No.
torque limiter at 10 Nm	139 0010 901 0
Spare bit 3/8"	139 0010 901 4



Taper Wiper	Part.No.
for APC 14	139 0000 GR1 0
for APC 20	139 0000 GR2 0
for APC 25	139 0000 GR4 0



Spare parts	Part.No.
Worm set APC 14/20/25 Ø9 short	139 0000 004 0
Worm set APC 14/20/25 Ø9 long	139 0000 005 0



Spare-Pins for Pin-Lock		
DxL	für	Part.No.
Ø2x12 (3 pieces)	APC20 Ø18	139 3020 212 0
Ø3x8 (3 pieces)	APC20 Ø20	139 3020 308 0
Ø3x12 (3 pieces)	APC20 Ø16	139 3020 312 0
Ø3x14 (3 pieces)	APC20 Ø6-14	139 3020 314 0
Ø4x12 (3 pieces)	APC25 Ø32	139 3025 412 0
Ø4x20 (3 pieces)	APC25 Ø22-25	139 3025 420 0
Ø4x26 (3 pieces)	APC25 Ø16-20	139 3025 426 0



Storage	Dimensions	Part.No.
for 24 Collets, APC 14	345x250x30	V01 FP14 024 0
for 21 Collets, APC 20	345x250x30	V01 FP20 021 0
for 10 Collets, APC 25	345x250x50	V01 FP25 010 0



# Balancing Screws

## Balancing Screws- Set, incl. case, key, difference-table and 180 pieces of fine-balancing-screws

Universal use, fits in all brands. 9 different screws in fine graduation. 20 screws each size, including Torx key. Different colours for visual identification. Precise balancing together with the clamped tool. Easy handling with Torx. Supplied with Torx ISR15 screwdriver. No need for screw locking. The balancing machine gives position and weight. Multiple use.

Typ	Part.No.
M6x4,0-8,0	139 4006 000 0



### Balancing Screws

Typ	Part.No.	Amount	Colour
M6x4,0	139 4006 040 0	20	black
M6x4,5	139 4006 045 0	20	silver
M6x5,0	139 4006 050 0	20	red
M6x5,2	139 4006 052 0	20	yellow
M6x6,0	139 4006 060 0	20	black
M6x6,5	139 4006 065 0	20	silver
M6x7,0	139 4006 070 0	20	red
M6x7,2	139 4006 072 0	20	yellow
M6x8,0	139 4006 080 0	20	black

# Accessories HSK

## Coolant tubes

DIN 69893 (HSK)	Part. No
Coolant tube HSK-A50	139 0002 650 0
Coolant tube HSK-A63	139 0002 663 0
Coolant tube HSK-A80	139 0002 680 0
Coolant tube HSK-A100	139 0002 610 0



## Key with T-handle

	Part. No
for Coolant tube HSK-A50	139 0020 650 0
for Coolant tube HSK-A63	139 0020 663 0
für for Coolant tube HSK-A80	139 0020 680 0
for Coolant tuber HSK-A100	139 0020 610 0



# Mountingsystem

flexible, vertical/horizontal, locked



Mounting System- Base Unit	Part.No.
	730 1000 000 0

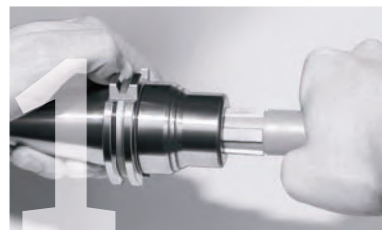


Adaptor	Part.No.
<b>ISO 7388-1 + ISO7388-2</b>	
SK30 + BT30	730 1000 230 0
SK40 + BT40	730 1000 240 0
SK50 + BT50	730 1000 250 0
<b>DIN 69893</b>	
HSK50	730 1000 650 0
HSK63	730 1000 663 0
HSK80	730 1000 680 0
HSK100	730 1000 610 0
<b>ISO 26623-1</b>	
PSC50	730 1000 9C5 0
PSC63	730 1000 9C6 0
PSC80	730 1000 9C8 0



# Handling APC and Ultra

The Albrecht chuck is high precision toolholder with clamping gear. Its unique design provides a very high clamping force, run-out accuracy as well as a positive dampening feature for machining (milling, drilling, reaming, tapping, heavy-duty cutting, finish milling, HSC operations). The Chuck uses a special collet to clamp the cutting tool and is operated by a hex key on the periphery.

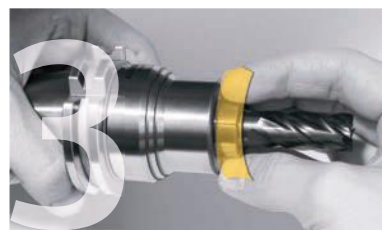


## Cleaning, insert the Collet

Before each use, clean the inner cone chuck free cloth and chuck cone cleaner. Attention, do not work with compressed air during the cleaning process, as otherwise dissolved dirt particles can get into parts of the gearbox.



For maximum clamping forces, the bore, the tool shank, the cone of the clamping sleeve and the inner cone chuck must be degreased each time the tool is changed.



Insert the cleaned and undamaged tool shank into the clamping sleeve, observing the minimum clamping depth, see page 73. Screw the clamping sleeve with tool into the chuck manually until the clamping sleeve touches the cone.



## Clamping

The chucking procedure starts by engaging the screw on the side of the chuck and rotating the hex key clockwise. Max. clamping torque see product-marking. Use only Albrecht keys, see page 41.

Put in the hex key as far as possible.

Hex tool surface is to be inspected about damages!



Match the two arrowheads when clamping.



## Releasing

Open the Spannfutter by turning the hex key counter-clockwise. Note: when opening the chuck you must overcome two resistance points. First, you will overcome the friction torque and then the collet is loosened. Then open until the tool can be taken out, respectively the collet can be unscrewed manually.



## Length adjustment

A length stop screw is located in the collet and can be adjusted with a hex key (size 5/32 hex). For operation from the back through the chuck with taper shank a bolt with a through hole is necessary (form AD).

The range of the length adjustment: 11mm.

Technical Data Typ	Clamping-Diameter, Ø-Tolerance h6, Ø mm / Ø inch		Min. Clampingdepth	Max. Clampingdepth
14/20	2 - 5	1/8" - 3/16"	17	66
	6	1/4"	22	40
	7 - 10	5/16" - 3/8"	30	50
20	11 - 15	7/16" - 9/16"	38	50
	16 - 20	5/8" - 3/4"	38	48,5
25	12,7	1/2"	47	54,5
	16 - 32	5/8" - 11/4"	47	60

## Balancing grade

Each Albrecht Chuck is fine-balanced without collet and tool according to the laser marking. Higher balancing quality and rpm on request. The use of shanks with recesses influences the balancing grade and run-out accuracy of the whole system.

## Maintenance

The Chuck is maintenance free over his lifetime. Clean chuck (especially the inner cone) and collet including thread after usage with a solvent base cleaner. According to contamination the cleaning cycles have to be adjusted. After cleaning, apply a thin coat of anticorrosive.

## Repairs

In order to guarantee the precision of the tool, any chuck in need of repair has to be sent to the manufacturer or to an authorized national agent only. We recommend checking the chuck and the collet for run-out deviations and gripping torque periodic, especially after a tool break or crash.

# Assessment of tool holder performance in roughing with end mills

## Abstract

Tool holders are an important power train component of milling with shaft tools having a high impact on dynamic process behaviour and process results. This leads to a significant demand among industrial companies for scientifically proven methods to analyse tool holders which are easy to use as well. Different approaches were applied in order to meet these demands. The dynamic vibrational behaviour of different clamping mechanisms is investigated using tool holders of similar dimensions. First, the resonance frequencies of the tool holders are identified from dynamic compliance measurements in the machine tool. Subsequently, the dynamic process behaviour is investigated by peripheral milling tests in which vibrations of tool and tool holder are detected by acceleration sensors and microphones. Analysis of the sensor data and optical analysis of the manufactured surface reveal a significant influence of the particular clamping mechanism, superimposed by certain geometrical variations of the investigated tool holders. Chatter frequencies occurring during milling tests seem independent of the clamping mechanism respectively the particular tool holder and are caused by the tool or machine-tool components. They correspond roughly with the natural frequencies identified before. Chatter intensity and spindle speeds, at which chatter occurs, are influenced by the tool holders. The occurrence of chatter vibrations correlates with a significant drop in the surface quality of the workpiece. High resonance frequencies of the tool holder excited by chatter and low-frequency waviness observed on the machined surface are related. The well-known phenomenon can be explained under rough milling conditions by a 2D-model-based superposition of subsequent cutting edge engagements. This in turn may enable dynamic analysis and optimisation of rough milling operations by easy to use shop floor equipment in future.

**Keywords** Tool holders · Dynamic behaviour · Surface formation · Frequency analysis · Shaft tools · Steel milling

## Investigated tool holder systems:

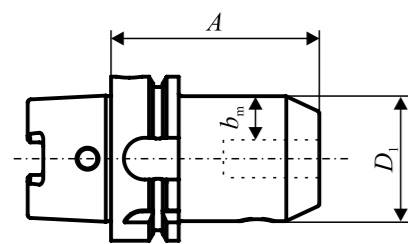


Fig. 1 Examples of the investigated tool holder systems

## Test setup:

Machine: MC12 by Gebr. Heller  
 Tool: torus cutter, D=12, number of teeth=4  
 Material: Steel, 42CrMo4 (1.7225)  
 Cutting Parameter:  
 n= 3979 rev/min  
 fz= 0,04 mm/rev/tooth  
 ae= 7mm  
 ap= 18mm

Table 1 Main properties of the investigated tool holders



Tool holder	A [mm]	mass m [g]	D <sub>1</sub> [mm]	b <sub>m</sub> [mm]	Design
APC	92	1457	40	18	Modular
ER	100	1274	42	12.5	Modular
HE	90	1123	32	9	Monolithic <sup>a</sup>
TS	90	918	24	8	Monolithic <sup>a</sup>
Weldon	80	1120	42	15	Monolithic <sup>b</sup>

<sup>a</sup>Full-periphery clamping

<sup>b</sup>Point-line clamping

# Correlation between in-process vibrations and surface quality:

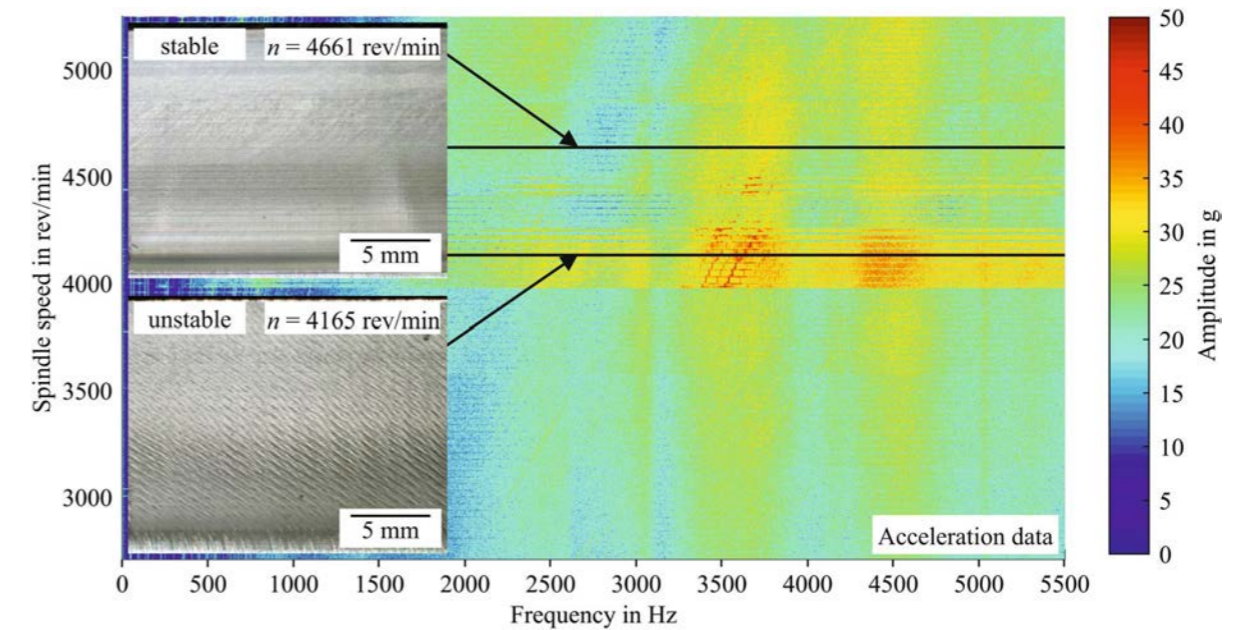


Fig. 7 Correlation between in-process vibrations and surface quality. (Tool holder: ER-collet, n = 2708 – 5250 rev/min, f<sub>z</sub> = 0.04 mm/rev/tooth, a<sub>c</sub> = 7 mm, a<sub>p</sub> = 18 mm)

# APC with best results in comparison to other tool-holders:

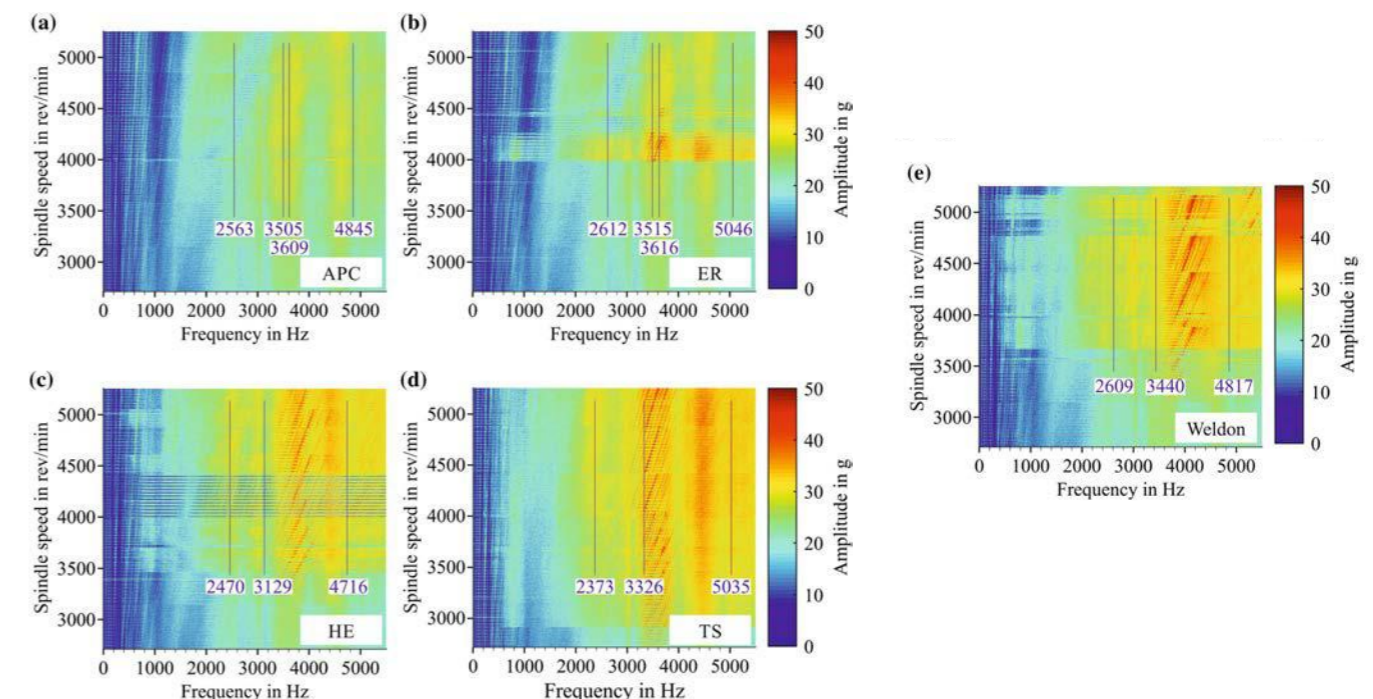


Fig. 6 Visualisation of in-process vibrations using Campbell diagrams based on acceleration sensor data. (n = 2708 – 5250 rev/min, f<sub>z</sub> = 0.04 mm/rev/tooth, a<sub>c</sub> = 7 mm, a<sub>p</sub> = 18 mm)