



COMPLETE
METALWORKING
SOLUTIONS

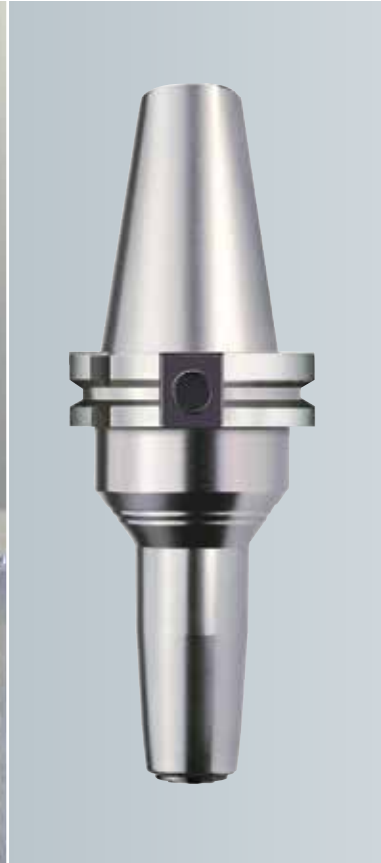
(800) 991-4225

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NEW
Expanded Sizes



FRANKEN

HIGH PRECISION

FPC MILLING/DRILLING CHUCKS

The Ultimate Precision Chuck

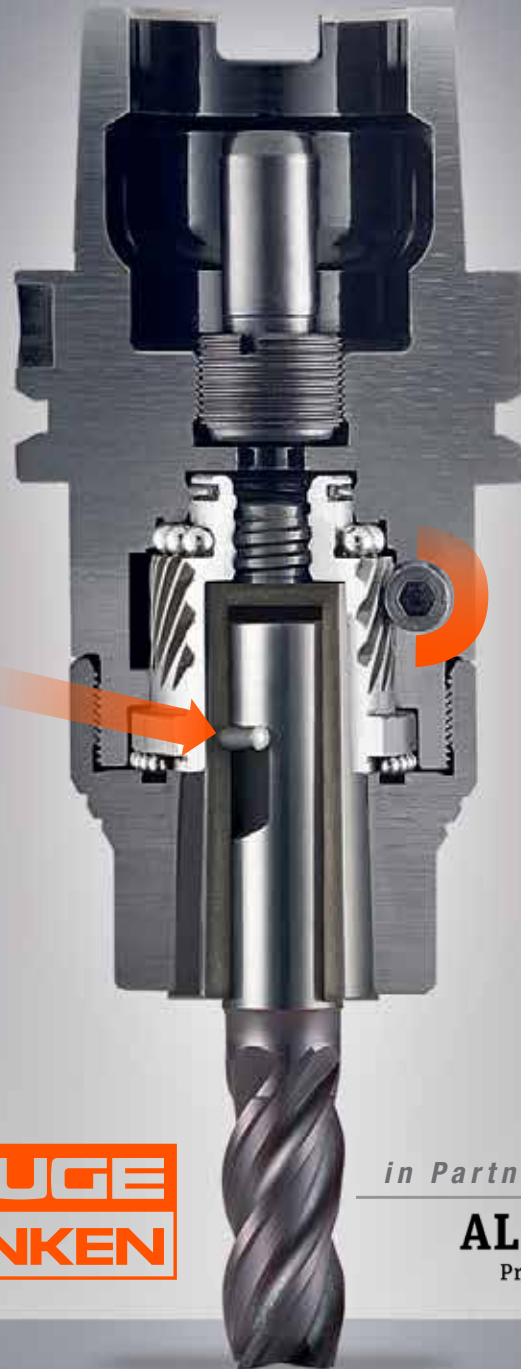
1. World's only chuck with 1:16 worm gear, a patented design delivering 3 tons of traction force.

2. Optimal Pull-Out Protection via optional Pin-Lock Collet System.

3. High rigidity. Patented design and body provides 100% holding power.

4. Mechanical drive actuated with a hex wrench. Simple design, highly accurate.

5. Maximum dampening. Collet-cone assembly absorbs virtually all vibration.



EMUGE
FRANKEN

in Partnership with

ALBRECHT
Precision Chucks

E MUGE-FRANKEN high precision/performance FPC Mill/Drill Chucks provide unprecedented rigidity, vibration dampening, concentricity, machining speed, and tool life vs. conventional chuck technologies for milling and drilling applications. Available in a wide range of styles. Internal and peripheral coolant options, and MQL-adaptable.

Increase your machining speed and tool life to the highest possible levels.

EMUGE-FRANKEN FPC Chuck Advantages:





- **Reliability**
Extremely high transferable torque provides maximum process reliability.
- **More accurate**
With a 3XD tool length, concentricity is $\leq 3 \mu\text{m}$, guaranteeing long tool life and quality surface finishes.
- **Longer tool life**
Special holder design reduces vibration, dramatically improving work piece surface finishes and providing exceptionally long tool life.
- **Fast tool change**
Simple, highly accurate design enables quick tool change in seconds, via hex wrench.



The Fastest Chuck in the West, east, north, and south.

In a speed comparison with four chuck technologies, using a 16mm end mill in the same material, the EMUGE-FRANKEN FPC Chuck is the clear winner.

Winner by 00:25!

	15.75"
Hydraulic	12.60"
Weldon	11.81"
Shrink Fit	11.00"

CAT		CAT SLIM LINE		HSK-A			HSK-A SLIM LINE		
									
CAT 40 1/8" - 1 1/4" 2 - 32 mm	CAT 50 1/8" - 1 1/4" 2 - 32 mm	CAT 40 1/8" - 3/4" 2 - 20 mm		A63, A80, A100 1/8" - 1 1/4" 2 - 32 mm	A125 1/2" - 1 1/4" 16 - 32 mm	F63 1/8" - 3/4" 2 - 20 mm	HSK-A63 1/8" - 3/4" 2 - 20 mm		
6494		6494S		6476			6476S		
page 6		page 7		page 8			page 9		

SK			SK SLIM LINE		BT			BT SLIM LINE	
									
SK30 1/8" - 9/16" 2 - 20 mm	SK40 1/8" - 1 1/4" 2 - 32 mm	SK50 1/8" - 1 1/4" 2 - 32 mm	SK40 1/8" - 3/4" 2 - 20 mm		BT30 1/8" - 3/4" 2 - 20 mm	BT40 1/8" - 1 1/4" 2 - 32 mm	BT50 1/8" - 1 1/4" 2 - 32 mm	BT40 1/8" - 3/4" 2 - 20 mm	
6491			6491S		6493			6493S	
page 10			page 11		page 12			page 13	

PSC			PSC SLIM LINE		CAT MICRO		HSK-A MICRO		
									
C5 1/8" - 3/4" 2 - 20 mm	C6 1/8" - 1 1/4" 2 - 32 mm	C7 1/8" - 1 1/4" 2 - 32 mm	PSC63 1/8" - 3/4" 2 - 20 mm		CAT 40 1/8" - 1/4" 1 - 6 mm		HSK 40-A 1/8" - 1/4" 1 - 6 mm	HSK 50-A 1/8" - 1/4" 1 - 6 mm	HSK 63-A 1/8" - 1/4" 1 - 6 mm
6496			6477S		6394		6392		
page 14			page 15		page 18		page 18		

HSK-E MICRO		SK MICRO		BT MICRO		PSC MICRO	
							
HSK 40-E 1/8" - 1/4" 1 - 6 mm	HSK 50-E 1/8" - 1/4" 1 - 6 mm	SK30 1/8" - 1/4" 1 - 6 mm	SK40 1/8" - 1/4" 1 - 6 mm	BT30 1/8" - 1/4" 1 - 6 mm	BT40 1/8" - 1/4" 1 - 6 mm	PSC40 1/8" - 1/4" 1 - 6 mm	PSC63 1/8" - 1/4" 1 - 6 mm
6399		6391		6393		6396	
page 18		page 19		page 19		page 20	

FMC COLLETS		FPC COLLETS			FPC PIN-LOCK COLLETS		FPC PIN-LOCK COLLETS 2.0	
								
FMC 1/8" - 1/4" 1 - 6 mm		FPC14 1/8" - 9/16" 2 - 14 mm	FPC20 1/8" - 3/4" 2 - 20 mm	FPC25 5/8" - 1 1/4" 16 - 32 mm	FPC20 1/4" - 5/8" 6 - 18 mm	FPC25 1/2" - 1" 16 - 25 mm	FPC20 1/4" - 5/8" 6 - 16 mm	FPC25 1/2" - 1" 16 - 25 mm
6648 / 6649		6638 / 6639			6637 / 6633		6631	
page 20		page 21			page 22		page 23	

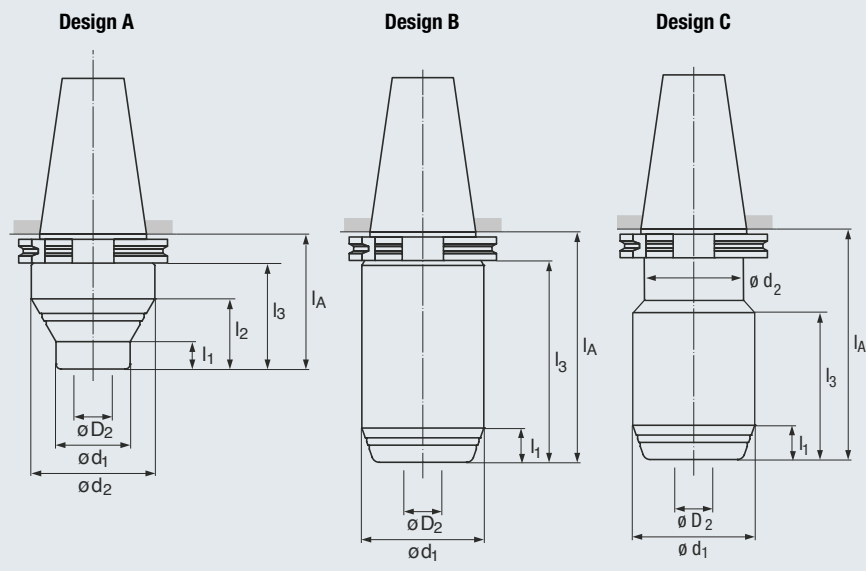
MICRO COLLET EXTENSIONS	FMC ACCESSORIES	FPC ACCESSORIES	
			
FMC 1/8" - 1/4" 1 - 6 mm			
6395			
page 24	page 24	pages 25 - 27	

- Taper shank acc. ASME B5.50-2009
- Taper quality AT3
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

CAT

FPC $\leq 3 \mu\text{m}$

AT3 62.5 20,000 min⁻¹



Icon descriptions (see page 29)

CAT 40

SIZE	D2 (Range)		Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.
FPC14	1/8" - 9/16"	2 mm - 14 mm	A	30	50	11	28	43	62	6494.401406*
	1/8" - 9/16"	2 mm - 14 mm	A	30	50	61	78	93	112	6494.401411
	1/8" - 9/16"	2 mm - 14 mm	A	30	50	85	103	129	148	6494.401414*
FPC20	1/8" - 3/4"	2 mm - 20 mm	A	40	50	20	28	43	62	6494.402006*
	1/8" - 3/4"	2 mm - 20 mm	A	40	50	69	78	93	112	6494.402011*
	1/8" - 3/4"	2 mm - 20 mm	A	40	50	94	103	129	149	6494.402014
FPC25	1/2" - 1 1/4"	16 mm - 32 mm	C	63	50	14	-	61	102	6494.402510

CAT 50

SIZE	D2 (Range)		Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.
FPC20	1/8" - 3/4"	2 mm - 20 mm	A	40	63	18	38	43	62	6494.502006
	1/8" - 3/4"	2 mm - 20 mm	A	40	63	84	104	129	149	6494.502014
FPC25	1/2" - 1 1/4"	16 mm - 32 mm	B	70	-	15	-	83	102	6494.502510

NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

FPC Collets and Accessories (see pages 21-27, please order separately)

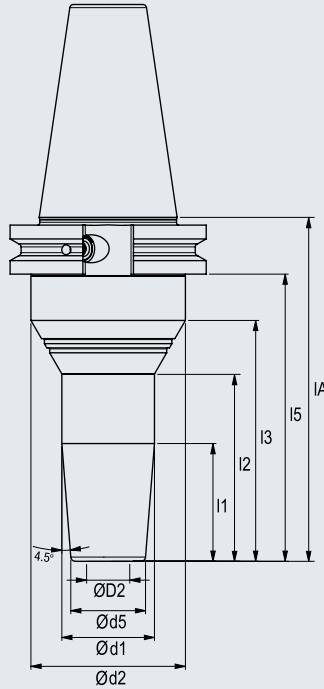
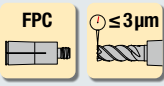
Pull stud threads are UNC standard

⚠ * Caution: tool does not have a safety zone.
Be sure to check for tool changer interference before using.

- Taper shank acc. ASME B5.50-2009
- Taper quality AT3
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

CAT

Slim line



*Slim Line Design
Ideal for 5-Axis*

Icon descriptions (see page 29)

CAT 40 SLIM LINE

SIZE	D2 (Range)	d ₁	d ₂	d ₅	l ₁	l ₂	l ₃	l ₅	l _A	EDP No.	
FPC14	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	-	56	71	90	6494S.401409 NEW
	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	61	78	93	112	6494S.401411
	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	85	103	129	148	6494S.401414 NEW
FPC20	1/8" - 3/4"	2 mm - 20 mm	39	50	32	44	-	54	71	90	6494S.402009 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	32	51	69	78	93	112	6494S.402011 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	32	51	94	103	129	148	6494S.402014 NEW

NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

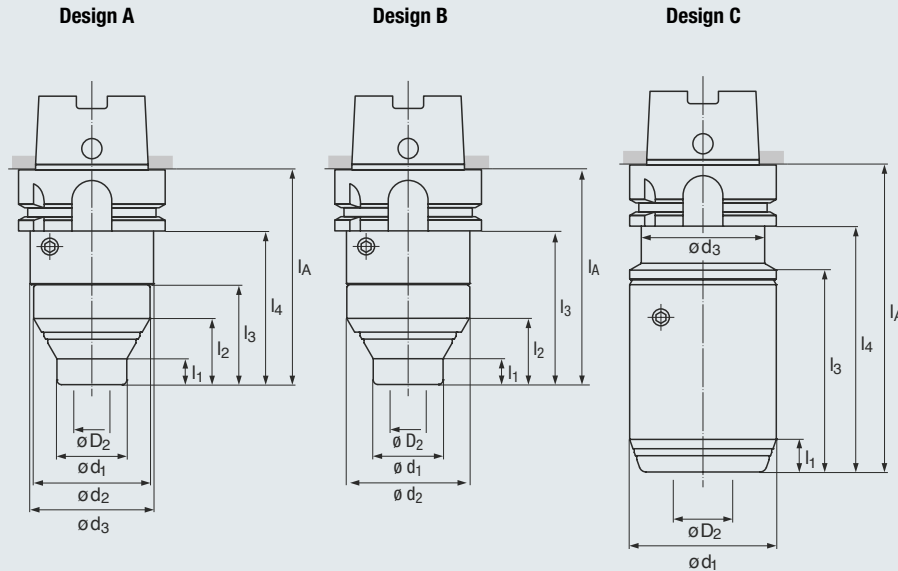
FPC Collets and Accessories (see pages 21-27, please order separately)

- Hollow taper shank acc. DIN 69893-1
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

HSK-A

FPC $\leq 3 \mu\text{m}$

G2.5
20,000 min⁻¹



Icon descriptions (see page 29)

HSK-A63 – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	Design	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	l ₄	l _A	EDP No.	
FPC14	1/8" - 9/16"	2 mm - 14 mm	A	30	50	53	11	28	43	66	92	6476.631409
	1/8" - 9/16"	2 mm - 14 mm	A	30	50	53	61	78	93	116	142	6476.631414
	1/8" - 9/16"	2 mm - 14 mm	A	30	50	53	85	103	129	152	178	6476.631417
FPC20	1/8" - 3/4"	2 mm - 20 mm	B	40	53	-	20	31	66	-	92	6476.632009
	1/8" - 3/4"	2 mm - 20 mm	B	40	53	-	69	81	116	-	142	6476.632014
	1/8" - 3/4"	2 mm - 20 mm	B	40	53	-	94	105	152	-	178	6476.632017
FPC25	1/2" - 1 1/4"	16 mm - 32 mm	C	63	-	53	14	-	87	106	132	6476.632513

HSK-A80 – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	Design	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	l ₄	l _A	EDP No.	
FPC20	1/8" - 3/4"	2 mm - 20 mm	B	40	63	-	18	38	72	-	98	6476.802009
FPC25	1/2" - 1 1/4"	16 mm - 32 mm	C	63	-	-	14	-	-	111	137	6476.802513

HSK-A100 – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	Design	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	l ₄	l _A	EDP No.	
FPC20	1/8" - 3/4"	2 mm - 20 mm	A	40	63	70	18	38	43	71	100	6476.102010
	1/8" - 3/4"	2 mm - 20 mm	A	40	63	70	48	68	93	121	150	6476.102015
	1/8" - 3/4"	2 mm - 20 mm	A	40	63	70	84	104	129	157	186	6476.102018
FPC25	1/2" - 1 1/4"	16 mm - 32 mm	C	70	-	-	15	-	-	110	139	6476.102513

HSK-A125 – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	Design	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	l ₄	l _A	EDP No.	
FPC25	1/2" - 1 1/4"	16 mm - 32 mm	C	70	-	-	15	-	-	116	145	6476.122514 NEW

HSK-F63 – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	Design	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	l ₄	l _A	EDP No.	
FPC20	1/8" - 3/4"	2 mm - 20 mm	B	40	53	-	20	31	66	-	92	6478.632009

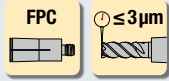
NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs.

FPC Collets and Accessories (see pages 21-27, please order separately). Coolant tubes and assembly wrenches available upon request.

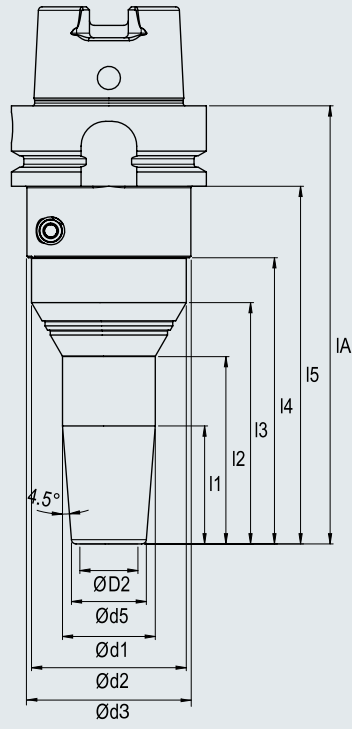
- Hollow taper shank acc. DIN 69893-1
- Slim line for 5-Axis operation
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

HSK-A

Slim line



G2.5
20,000 min⁻¹



*Slim Line Design
Ideal for 5-Axis*

Icon descriptions (see page 29)

HSK-A 63 SLIM LINE – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	d ₁	d ₂	d ₃	d ₅	l ₁	l ₂	l ₃	l ₄	l ₅	l _A	EDP No.	
FPC14	1/8" - 9/16"	2 mm - 14 mm	30	50	53	24	38	-	56	71	94	120	6476S.631412
	1/8" - 9/16"	2 mm - 14 mm	30	50	53	24	38	61	78	93	116	142	6476S.631414
	1/8" - 9/16"	2 mm - 14 mm	30	50	53	24	38	85	103	129	152	178	6476S.631417 NEW
FPC20	1/8" - 3/4"	2 mm - 20 mm	39	50	53	32	44	-	54	71	94	120	6476S.632012 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	53	32	51	69	78	93	116	142	6476S.632014 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	53	32	51	94	103	129	152	178	6476S.632017 NEW

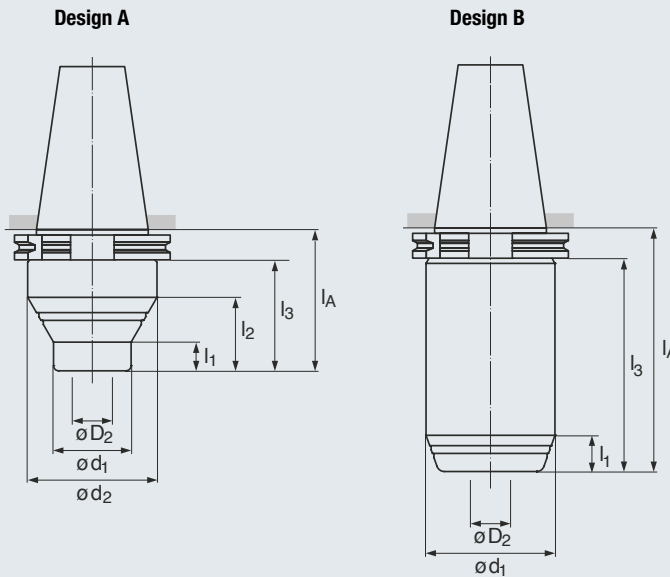
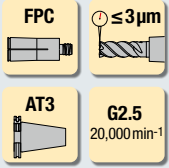
NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

FPC Collets and Accessories (see pages 21-27, please order separately)

Coolant tubes and assembly wrenches available upon request

- ISO taper shank acc. DIN ISO 7388-1 (formerly DIN 69871)
- Taper quality AT3
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

SK (ISO)



Icon descriptions (see page 29)

SK30

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.	
FPC14	1/8" - 9/16"	2 mm - 14 mm	A	30	53	11	28	73	92	6491.301409
	1/8" - 9/16"	2 mm - 14 mm	A	30	53	61	78	93	142	6491.301414 NEW
FPC20	1/8" - 9/16"	2 mm - 20 mm	A	40	53	20	28	73	92	6491.302009

SK40

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.	
FPC14	1/8" - 9/16"	2 mm - 14 mm	A	30	50	11	28	43	62	6491.401406
	1/8" - 9/16"	2 mm - 14 mm	A	30	50	61	78	93	112	6491.401411
	1/8" - 9/16"	2 mm - 14 mm	A	30	50	85	103	129	149	6491.401414
FPC20	1/8" - 3/4"	2 mm - 20 mm	A	40	50	20	28	43	63	6491.402006
	1/8" - 3/4"	2 mm - 20 mm	A	40	50	69	78	93	112	6491.402011
	1/8" - 3/4"	2 mm - 20 mm	A	40	50	94	103	129	149	6491.402014
FPC25	1/2" - 1 1/4"	16 mm - 32 mm	B	63	-	14	-	83	102	6491.402510*

⚠ * Caution: tool does not have a safety zone. Be sure to check for tool changer interference before using.

SK50

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.	
FPC20	1/8" - 3/4"	2 mm - 20 mm	A	40	63	18	38	43	62	6491.502006
	1/8" - 3/4"	2 mm - 20 mm	A	40	63	48	68	93	112	6491.502011 NEW
	1/8" - 3/4"	2 mm - 20 mm	A	40	63	84	104	129	149	6491.502014
FPC25	1/2" - 1 1/4"	16 mm - 32 mm	B	70	-	15	-	83	102	6491.502510

NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

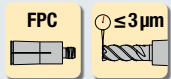
FPC Collets and Accessories (see pages 21-27, please order separately)

Pull stud threads are metric and available upon request

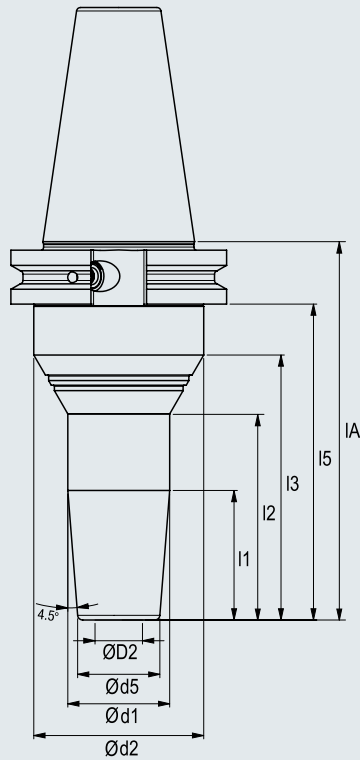
- ISO taper shank acc. DIN ISO 7388-1 (formerly DIN 69871)
- Slim line with 4.5° especially for 5-axis machining
- System runout accuracy 3 µm at 2.5xD
- Sealed against coolant and contamination
- Internal coolant supply
- Clamping tool shank according to DIN 1835 A, B & DIN 6535 HB, HA

SK (ISO)

Slim line



G2.5
20,000 min⁻¹



*Slim Line Design
Ideal for 5-Axis*

Icon descriptions (see page 29)

SK40 SLIM LINE

SIZE	D2 (Range)	d ₁	d ₂	d ₅	l ₁	l ₂	l ₃	l ₅	l _A	EDP No.	
FPC14	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	-	56	71	90	6491S.401409
	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	61	78	93	112	6491S.401411
	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	85	103	129	149	6491S.401414 NEW
FPC20	1/8" - 3/4"	2 mm - 20 mm	39	50	32	44	-	54	71	90	6491S.402009 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	32	51	69	78	93	112	6491S.402011 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	32	51	94	103	129	149	6491S.402014 NEW

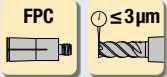
NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

FPC Collets and Accessories (see pages 21-27, please order separately)

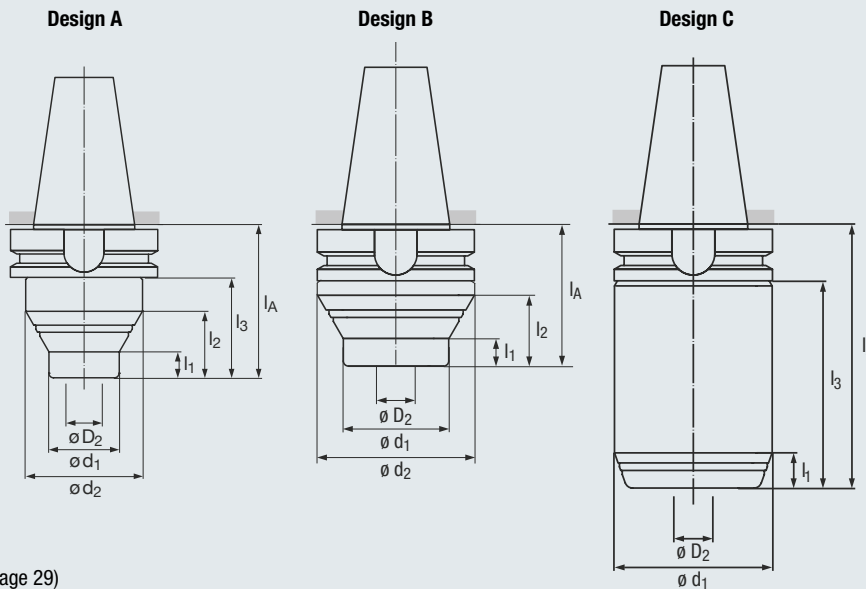
Pull stud threads are metric and available upon request

- ISO taper shank acc. DIN ISO 7388-2 (formerly JIS B 6339/MAS 403 BT)
- Taper quality AT3
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

BT



G2.5
20,000 min⁻¹



Icon descriptions (see page 29)

BT30

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.
FPC14	1/8" - 9/16" 2 mm - 14 mm	A	30	53	11	28	56	82	6493.301408
FPC20	1/8" - 3/4" 2 mm - 20 mm	A	40	53	20	31	56	82	6493.302008

BT40

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.
FPC14	1/8" - 9/16" 2 mm - 14 mm	A	30	50	11	28	43	70	6493.401407
	1/8" - 9/16" 2 mm - 14 mm	A	30	50	61	78	93	120	6493.401412
	1/8" - 9/16" 2 mm - 14 mm	A	30	50	85	103	129	156	6493.401415
FPC20	1/8" - 3/4" 2 mm - 20 mm	B	40	63	18	38	-	70	6493.402007
	1/8" - 3/4" 2 mm - 20 mm	B	40	63	48	68	-	120	6493.402012
	1/8" - 3/4" 2 mm - 20 mm	B	40	63	84	104	-	156	6493.402015
FPC25	1/2" - 1 1/4" 16 mm - 32 mm	C	63	-	14	-	-	110	6493.402511

BT50

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.
FPC20	1/8" - 3/4" 2 mm - 20 mm	A	40	63	18	38	43	81	6493.502008
	1/8" - 3/4" 2 mm - 20 mm	A	40	63	48	68	93	131	6493.502013 NEW
	1/8" - 3/4" 2 mm - 20 mm	A	40	63	84	104	129	167	6493.502016
FPC25	1/2" - 1 1/4" 16 mm - 32 mm	C	70	-	15	-	83	121	6493.502512

NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

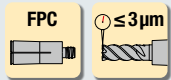
FPC Collets and Accessories (see pages 21-27, please order separately)

Pull stud threads are metric and available upon request

- ISO taper shank acc. DIN ISO 7388-2 (formerly JIS B 6339 / MAS-403BT)
- Slim line – ideal for 5-axis operation
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

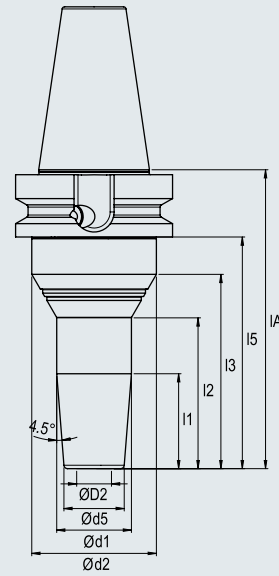
BT

Slim line



G2.5
20,000 min⁻¹

Icon descriptions (see page 29)



*Slim Line Design
Ideal for 5-Axis*

BT40 SLIM LINE

SIZE	D2 (Range)	d ₁	d ₂	d ₅	l ₁	l ₂	l ₃	l ₅	l _A	EDP No.	
FPC14	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	-	56	71	98	6493S.401409
	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	61	78	93	120	6493S.401412
	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	85	103	129	157	6493S.401415 NEW
FPC20	1/8" - 3/4"	2 mm - 20 mm	39	50	32	44	-	54	71	98	6493S.402009 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	32	51	69	78	93	120	6493S.402012 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	32	51	94	103	129	157	6493S.402015 NEW

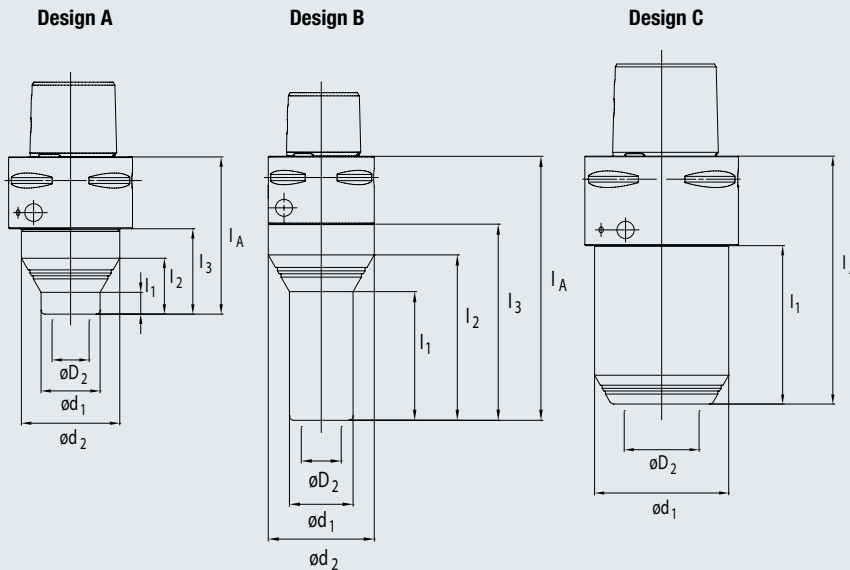
NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

FPC Collets and Accessories (see pages 21-27, please order separately)

Pull stud threads are metric and available upon request

- Polygon shank acc. ISO 26623-1
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

PSC



Icon descriptions (see page 29)

C5

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.
FPC14	1/8" - 9/16" 2 mm - 14 mm	A	30	53	61	78	93	127	6496.051412
FPC20	1/8" - 3/4" 2 mm - 20 mm	B	40	53	20	31	-	78	6496.052007

C6 – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.
FPC14	1/8" - 9/16" 2 mm - 14 mm	A	30	50	11	28	43	80	6477.061408
	1/8" - 9/16" 2 mm - 14 mm	A	30	50	61	78	93	130	6477.061413
	1/8" - 9/16" 2 mm - 14 mm	A	30	50	85	103	129	166	6477.061416
FPC20	1/8" - 3/4" 2 mm - 20 mm	B	40	63	18	38	-	80	6477.062008
	1/8" - 3/4" 2 mm - 20 mm	B	40	63	48	68	-	130	6477.062013
	1/8" - 3/4" 2 mm - 20 mm	B	40	63	84	104	-	166	6477.062016
FPC25	1/2" - 1 1/4" 16 mm - 32 mm	C	63	-	-	-	-	119	6477.062511

C8 – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	Design	d ₁	d ₂	l ₁	l ₂	l ₃	l _A	EDP No.
FPC20	1/8" - 3/4" 2 mm - 20 mm	B	40	63	18	38	43	90	6477.082009
	1/8" - 3/4" 2 mm - 20 mm	B	40	63	48	68	93	140	6477.082014
FPC25	1/2" - 1 1/4" 16 mm - 32 mm	C	70	-	83	-	-	129	6477.082512

NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

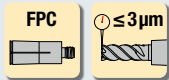
FPC Collets and Accessories (see pages 21-27, please order separately)

Coolant tubes and assembly wrenches available upon request

- Polygon shank acc. ISO 25623-1
- Slim line – ideal for 5-axis operation
- Concentricity $\leq 3 \mu\text{m}$ at projection length of 3 x dia.
- Internal coolant supply

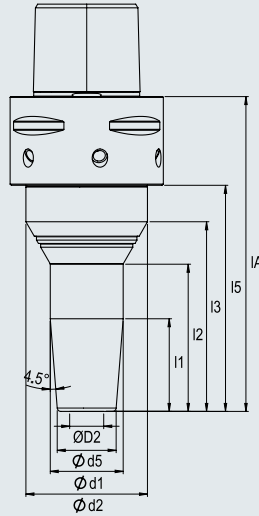
PSC

Slim line



G2.5
20,000 min⁻¹

Icon descriptions (see page 29)



*Slim Line Design
Ideal for 5-Axis*

PSC63 SLIM LINE – Fine Balancing Holes with 6xM6 Threads

SIZE	D2 (Range)	d ₁	d ₂	d ₅	l ₁	l ₂	l ₃	l ₅	l _A	EDP No.	
FPC14	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	-	56	71	108	6477S.061410
	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	61	78	93	130	6477S.061413
	1/8" - 9/16"	2 mm - 14 mm	30	50	24	38	85	103	129	166	6477S.061416 NEW
FPC20	1/8" - 3/4"	2 mm - 20 mm	39	50	32	44	-	54	71	108	6477S.062010 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	32	51	69	78	93	130	6477S.062013 NEW
	1/8" - 3/4"	2 mm - 20 mm	40	50	32	51	94	103	129	166	6477S.062016 NEW

NOTE: Mechanical drive torque wrench must be set at max. 10 Nm / 7.38 ft-lbs

FPC Collets and Accessories (see pages 21-27, please order separately)

Coolant tubes and assembly wrenches available upon request

FMC Micro-holder, the slim collet solution

FMC slim high-precision micro collet holders were developed for holding micro and mini tools. All cylindrical shanks according to DIN 1835 and DIN 5535 up to a shank diameter of 6 mm can be clamped.

Holders are rotationally symmetrical with excellent concentricity and can be used at very high rotational speeds.

High concentricity

Specially-coated collet guarantees a concentricity $\leq 3\mu\text{m}$ at projection length of $3 \times D_1$.

Longer tool life

Clamping system has excellent damping properties for reducing vibrations.

Optimum coolant supply

Coolant-lubricant can be supplied either through slots, collet, or coolant channel of the tool.



Long service life

System is maintenance-free, sealed against coolant and contamination.

Quick tool change

Tool change takes place from behind through the tool holder via hexagon wrench.

**Slim contour**

Improves accessibility for deep and narrow cavities. Ideal for difficult-to-reach, deep-set machining operations.



High balance quality

Holders are balanced to $G = 2.5$ at 20,000 rpm. Smaller holder sizes are balanced to < 1 gmm.

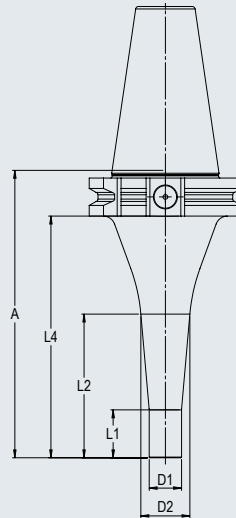
- ASME B5.50-2009
- Slim design for hard to access areas
- High gripping torque and accuracy
- Special coated collets
- Operation from behind with included hex-key
- Internal coolant supply

CAT

Micro

Icon descriptions (see page 29)



CAT MICRO

SIZE	Tool Shank Diameter Range		D ₁	D ₂	L ₁	L ₂	L ₄	A	EDP No.
CAT40	1/8"-1/4"	1 mm - 6 mm	13.5	16.6	20	38	71	90	6394.400609
	1/8"-1/4"	1 mm - 6 mm	13.5	20.5	20	60	101	120	6394.400612

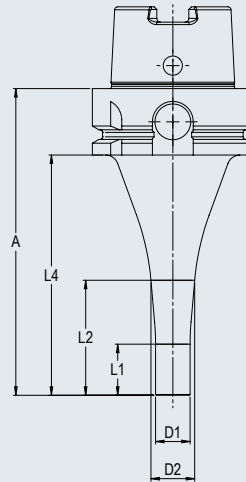
- DIN 69893
- Slim design for hard to access areas
- High gripping torque and accuracy
- Special coated collets
- Operation from behind with included hex-key
- Internal coolant supply

HSK

Micro




Icon descriptions (see page 29)



HSK MICRO

SIZE	Tool Shank Diameter Range		D ₁	D ₂	L ₁	L ₂	L ₄	A	EDP No.
HSK 40-A	1/8"-1/4"	1 mm - 6 mm	13.5	16	20	35	55	75	6392.400607 NEW
HSK 50-A	1/8"-1/4"	1 mm - 6 mm	13.5	16	20	33.5	59	85	6392.500608
	1/8"-1/4"	1 mm - 6 mm	13.5	18	20	45	94	120	6392.500612
HSK 63-A	1/8"-1/4"	1 mm - 6 mm	13.5	15	20	30	64	90	6392.630609
	1/8"-1/4"	1 mm - 6 mm	13.5	17	20	45	94	120	6392.630612
HSK 40-E	1/8"-1/4"	1 mm - 6 mm	13.5	22	20	70	134	160	6392.630616 NEW
	1/8"-1/4"	1 mm - 6 mm	13.5	16	20	35	55	75	6399.400607
HSK 50-E	1/8"-1/4"	1 mm - 6 mm	13.5	17	20	40	59	85	6399.500608
	1/8"-1/4"	1 mm - 6 mm	13.5	18	20	45	94	120	6399.500612

NOTE: Mechanical drive torque wrench must be set at 3.0 - 4.4 Nm

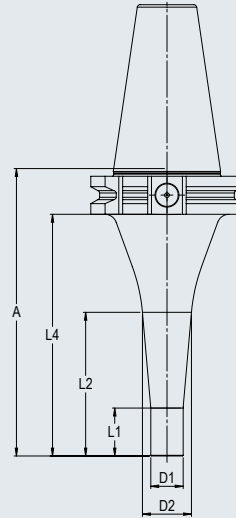
FMC Collets and Accessories (see pages 20 and 24, please order separately)

Coolant tubes and assembly wrenches available upon request

- ISO 7388-1
- Slim design for hard to access areas
- High gripping torque and accuracy
- Special coated collets
- Operation from behind with included hex-key
- Internal coolant supply

SK (ISO)

Micro



Icon descriptions (see page 29)

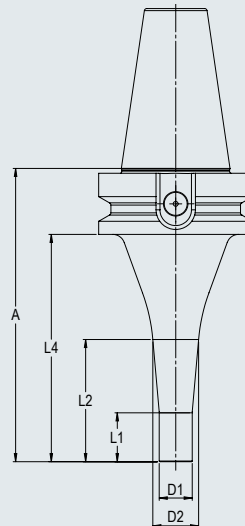
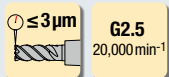
SK MICRO

SIZE	Tool Shank Diameter Range		D ₁	D ₂	L ₁	L ₂	L ₄	A	EDP No.
SK30	1/8"-1/4"	1 mm - 6 mm	13.5	16	20	32	56	75	6391.300607
	1/8"-1/4"	1 mm - 6 mm	13.5	17	20	38	71	90	6391.400609
SK40	1/8"-1/4"	1 mm - 6 mm	13.5	21	20	60	101	120	6391.400612
	1/8"-1/4"	1 mm - 6 mm	13.5	23	20	75	141	160	6391.400616 NEW

- ISO 7388-2
- Slim design for hard to access areas
- High gripping torque and accuracy
- Special coated collets
- Operation from behind with included hex-key
- Internal coolant supply

BT

Micro



Icon descriptions (see page 29)

BT MICRO

SIZE	Tool Shank Diameter Range		D ₁	D ₂	L ₁	L ₂	L ₄	A	EDP No.
BT30	1/8"-1/4"	1 mm - 6 mm	13.5	15	20	30	53	75	6393.300607
	1/8"-1/4"	1 mm - 6 mm	13.5	15	20	30	63	90	6393.400609
BT40	1/8"-1/4"	1 mm - 6 mm	13.5	19	20	50	93	120	6393.400612
	1/8"-1/4"	1 mm - 6 mm	13.5	22	20	70	133	160	6393.400616 NEW

NOTE: Mechanical drive torque wrench must be set at 3.0 - 4.4 Nm

FMC Collets and Accessories (see pages 20 and 24, please order separately)

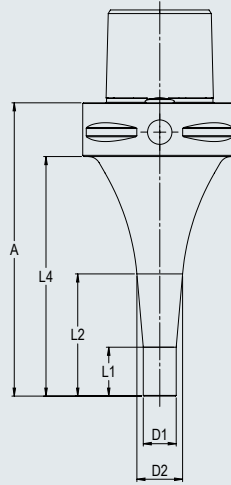
Coolant tubes and assembly wrenches available upon request

- ISO 26623-1
- Slim design for hard to access areas
- High gripping torque and accuracy
- Special coated collets
- Operation from behind with included hex-key
- Internal coolant supply

PSC

Micro

⊙ ≤ 3 μm **G2.5**
20,000 min⁻¹



Icon descriptions (see page 29)

PSC MICRO

SIZE	Tool Shank Diameter Range	D ₁	D ₂	L ₁	L ₂	L ₄	A	EDP No.
PSC40	1/8"-1/4" 1 mm - 6 mm	13.5	16	20	35	55	75	6396.400607
PSC63	1/8"-1/4" 1 mm - 6 mm	13.5	15	20	30	68	90	6396.630609
	1/8"-1/4" 1 mm - 6 mm	13.5	19	20	50	98	120	6396.630612

NOTE: Mechanical drive torque wrench must be set at 3.0 - 4.4 Nm

FMC Collets and Accessories (see pages 20 and 24, please order separately)

Coolant tubes and assembly wrenches available upon request

FMC Collets for Micro Chucks

- Standard version for coolant supply via slots in the collet
- Sealed version for tools with internal coolant supply

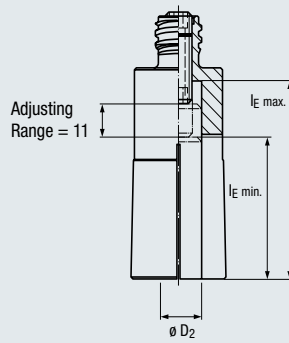
FMC



		Standard	Sealed
		EDP No.	EDP No.
[inch]	1/8"	6648.060125	6649.060125
	3/16"	6648.060188	6649.060188
	1/4"	6648.060250	6649.060250
[mm]	1	6648.0601	6649.0601
	2	6648.0602	6649.0602
	3	6648.0603	6649.0603
	4	6648.0604	6649.0604
	5	6648.0605	6649.0605
	6	6648.0606	6649.0606

- Length stop adjustable from both sides
- Standard version for coolant supply via slots in collet
- Sealed version for tools with internal coolant supply

FPC



For accessories (see pages 24 and 25)

INCH					Standard	Sealed	
SIZE	D ₂	l _E min	l _E max	Adjusting range	EDP No.	EDP No.	
FPC14	1/8"	17	48	11	6638.140125	6639.140125	
	3/16"	17	48	11	6638.140188	6639.140188	
	1/4"	25	48	11	6638.140250	6639.140250	
	5/16"	25	48	11	6638.140313	6639.140313	
	3/8"	29	48	11	6638.140375	6639.140375	
	7/16"	34	48	11	6638.140438	6639.140438	
	1/2"	34	48	11	6638.140500	6639.140500	
	9/16"	34	48	11	6638.140563	6639.140563	
FPC20	1/8"	17	48	11	6638.200125	6639.200125	
	3/16"	17	48	11	6638.200188	6639.200188	
	1/4"	25	48	11	6638.200250	6639.200250	
	5/16"	25	48	11	6638.200313	6639.200313	
	3/8"	29	48	11	6638.200375	6639.200375	
	7/16"	34	48	11	6638.200438	6639.200438	
	1/2"	34	48	11	6638.200500	6639.200500	
	9/16"	34	48	11	6638.200563	6639.200563	
	5/8"	37	48	11	6638.200625	6639.200625	
	11/16"	37	48	11	6638.200688	6639.200688	
	3/4"	39	48	11	6638.200750	6639.200750	
FPC25	5/8"	37	60	11	6638.250625	6639.250625	
	3/4"	39	60	11	6638.250750	6639.250750	
	1"	45	60	11	6638.251000	6639.251000	
	1 1/4"	48	60	11	6638.251250	6639.251250	
METRIC							
FPC14	2	17	48	11	6638.1402	6639.1402	
	3	17	48	11	6638.1403	6639.1403	
	4	17	48	11	6638.1404	6639.1404	
	5	17	48	11	6638.1405	6639.1405	
	6	25	48	11	6638.1406	6639.1406	
	7	25	48	11	6638.1407	6639.1407	
	8	25	48	11	6638.1408	6639.1408	
	9	29	48	11	6638.1409	6639.1409	
	10	29	48	11	6638.1410	6639.1410	
	11	34	48	11	6638.1411	6639.1411	
	12	34	48	11	6638.1412	6639.1412	
	14	34	48	11	6638.1414	6639.1414	
	FPC20	2	17	48	11	6638.2002	6639.2002
		3	17	48	11	6638.2003	6639.2003
4		17	48	11	6638.2004	6639.2004	
5		17	48	11	6638.2005	6639.2005	
6		25	48	11	6638.2006	6639.2006	
8		25	48	11	6638.2008	6639.2008	
10		29	48	11	6638.2010	6639.2010	
11		34	48	11	6638.2011	6639.2011	
12		34	48	11	6638.2012	6639.2012	
14		34	48	11	6638.2014	6639.2014	
15		37	48	11	6638.2015	6639.2015	
16		37	48	11	6638.2016	6639.2016	
18		37	48	11	6638.2018	6639.2018	
20		39	48	11	6638.2020	6639.2020	
FPC25	16	37	60	11	6638.2516	6639.2516	
	18	37	60	11	6638.2518	6639.2518	
	20	39	60	11	6638.2520	6639.2520	
	22	39	60	11	6638.2522	6639.2522	
	25	45	60	11	6638.2525	6639.2525	
	32	48	60	11	6638.2532	6639.2532	

Minimum quantity lubrication (1-channel or 2-channel MQL systems) possible by exchanging the length stop, available on request

l_E min. = Minimum clamping length of the tool with length stop
 l_E max. = Maximum clamping length of the tool without length stop

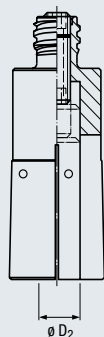
NOTE: FPC Collets torque value 10 Nm

FPC Pin-Lock Collets

- Use with straight shank standard tools according to DIN 6535 HB or DIN 1835 B (with Weldon flat)
- Available for FPC20 and FPC25 Chucks
- Standard version for coolant supply via slots in the collet
- Sealed version for tools with internal coolant supply
- Includes 3 pins

FPC

For accessories (see pages 24 and 25)



INCH		Standard **	Sealed
SIZE	D ₂	EDP No.	EDP No.
FPC20	1/4"	6637.200250	6633.200250
	5/16"	6637.200313	6633.200313
	3/8"	6637.200375	6633.200375
	7/16"	6637.200438	6633.200438
	1/2"	6637.200500	6633.200500
	5/8"	6637.200625	6633.200625
FPC25	1/2"	6637.250500	6633.250500
	5/8"	6637.250625	6633.250625
	3/4"	6637.250750	6633.250750
	7/8"	6637.250875	6633.250875
	1"	6637.251000	6633.251000
METRIC			
SIZE	D ₂	EDP No.	EDP No.
FPC20	6	6637.2006	6633.2006
	8	6637.2008	6633.2008
	10	6637.2010	6633.2010
	12	6637.2012	6633.2012
	14	6637.2014	6633.2014
	16	6637.2016	6633.2016
	18	6637.2018	6633.2018
FPC25	16	6637.2516	6633.2516
	18	6637.2518	6633.2518
	20	6637.2520	6633.2520
	22	6637.2522	6633.2522
	25	6637.2525	6633.2525

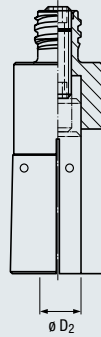
NOTE: FPC Collets torque value 10 Nm

**** While Supplies Last.
Items will be replaced with
EDP No. 6631.XXXXXX**

- Collets 2.0 have an improved coolant delivery design
- Additional channels for peripheral cooling directly on the tool shank
- Up to 60% higher metal removal rates and tool life
- Includes 3 pins and assembly tool
- Fine adjustable length stop
- Maintenance free

FPC

For accessories (see pages 24 and 25)



NEW



INCH		2.0	
SIZE	D ₂	EDP No.	
FPC20	1/4"	6631.200250	NEW
	5/16"	6631.200313	NEW
	3/8"	6631.200375	NEW
	7/16"	6631.200438	NEW
	1/2"	6631.200500	NEW
FPC25	5/8"	6631.200625	NEW
	1/2"	6631.250500	NEW
	5/8"	6631.250625	NEW
	3/4"	6631.250750	NEW
	7/8"	6631.250875	NEW
1"	6631.251000	NEW	
METRIC			
SIZE	D ₂	EDP No.	
FPC20	6	6631.2006	NEW
	8	6631.2008	NEW
	10	6631.2010	NEW
	12	6631.2012	NEW
	14	6631.2014	NEW
FPC25	16	6631.2016	NEW
	16	6631.2516	NEW
	18	6631.2518	NEW
	20	6631.2520	NEW
	22	6631.2522	NEW
25	6631.2525	NEW	



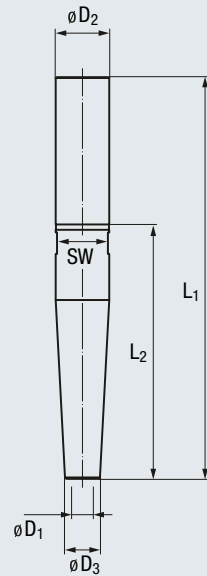
NEW

Pin-Lock Collets 2.0

with additional channels for peripheral cooling directly on the tool shank providing up to 60% higher Metal-Remove-Rate (MRR) and tool life.

FMC Micro Collet Extensions

- Straight shank, tolerance h6
- With wrench flats
- Concentricity < 8 µm
- Internal coolant supply



L ₁	D ₁	D ₃	L ₂	D ₂	SW	EDP No.
100 mm	1 mm - 6 mm	13	45	14	13	6395.14100
150 mm	1 mm - 6 mm	13	95	14	13	6395.14150
100 mm	1 mm - 6 mm	13	48	20	13	6395.20100
150 mm	1 mm - 6 mm	13	95	20	19	6395.20150

Hexagon wrench included with collet extensions

Hexagon Torque Wrench for FMC Collet Extensions

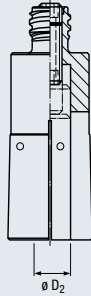


	Blade Length	Torque	EDP No.
Standard Torque Wrench for Extension and Micro Holder	113 mm	3.0 - 5.4 Nm	6665.021
Long Torque Wrench*	160 mm	3.0 - 5.4 Nm	6665.121

* Recommended for BT40 (6393.400616) and SK40 (6391.499616) Micro chucks

FPC Accessories

Pin-Lock Collet Assembly Tool



See page 29 for assembly tool use instructions.



SIZE	Pin-Lock Collet Diameter D ₂	Tool rod dia.	Width across flats	EDP No.
FPC20	6 mm - 16 mm	2 mm	SW4 (4 mm)	6665.055
	18 mm	1 mm	SW4 (4 mm)	6665.056
FPC25	16 mm - 25 mm	2 mm	SW5 (5 mm)	6665.057

Pin-Lock Collet Spare Pins



SIZE	Pin-Lock Collet Diameter D ₂	Diameter x Length (mm)	EDP No.
FPC20	6 mm - 14 mm	3 x 14	6665.041
	16 mm	3 x 12	6665.040
	18 mm	2 x 12	6665.044
FPC25	16 mm - 20 mm	4 x 26	6665.043
	22 mm - 25 mm	4 x 29	6665.042

Hexagon Torque Wrench

with break-away signal



Width across flats	Torque	EDP No.
SW4 (4 mm)	10 Nm	6665.011

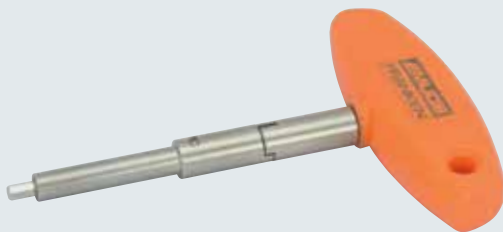
Spare Bit with Guidance Tube for Hexagon Torque Wrench



Width across flats	EDP No.
SW4 (4 mm)	6665.018

Hexagon Torque Wrench

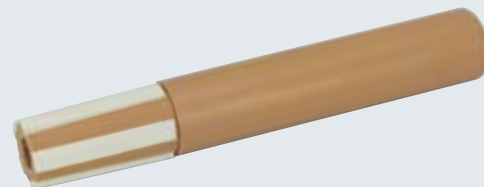
with marking for torque applied



Width across flats	Torque	EDP No.
SW4 (4 mm)	10 Nm	6665.014

Taper Cleaners

For cleaning the inside cone of FPC Collet Holders



For size	EDP No.
FPC 14	6665.030
FPC 20	6665.031
FPC 25	6665.032

FPC Accessories

Balancing Screw Set

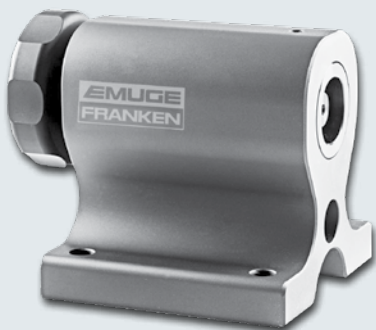


SIZE	# of screws	EDP No.
M6 T x 15 (Set with case)	180	6665.M6

BALANCING SCREWS

SIZE	# of screws	EDP No.
M6 x 4	20	6665.M604
M6 x 4.5	20	6665.M6045
M6 x 5	20	6665.M605
M6 x 5.25	20	6665.M6052
M6 x 6	20	6665.M606
M6 x 6.5	20	6665.M6065
M6 x 7	20	6665.M607
M6 x 7.2	20	6665.M6072
M6 x 8	20	6665.M608

FPC Mounting System - Base



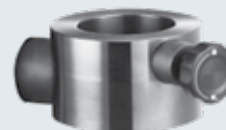
Description	EDP No.
Base Unit	6915.01

Storage Tray for FPC Collets



SIZE	Dimensions (mm)	for # of collets	EDP No.
FPC14	345 x 250 x 30	24	6665.051
FPC20	345 x 250 x 30	21	6665.052
FPC25	345 x 250 x 30	10	6665.053

FPC Mounting System - Adaptors



Description	EDP No.
Adapter SK30 & BT30	6915.02
Adapter SK40, BT40 & CAT40	6915.03
Adapter SK50, BT50 & CAT50	6915.04
Adapter HSK 50	6915.05
Adapter HSK 63	6915.06
Adapter HSK 80	6915.07
Adapter HSK 100	6915.08
Adapter PSC50	6915.09
Adapter PSC63	6915.10
Adapter PSC80	6915.11

FPC Accessories

Torque Limiter for use with power tool with 4mm hex bit. The mounting system locks the toolholder during operation.

Contact EMUGE-FRANKEN for information about recommended cordless drill model availability.



Torque	EDP No.
10 Nm	6665.027

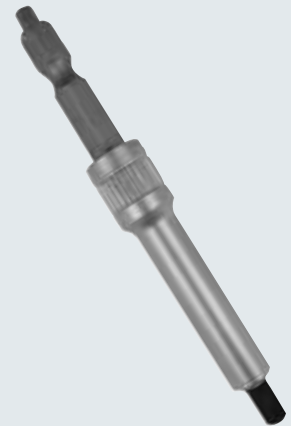
Cordless Screwdriver Bosch Exact Ion

Screwdriver is ideal for quick and safer clamping of all FPC Chucks. Fixed speed levels and automatic shutdown when the target torque of 10 Nm is reached. Supplied with a matching bit. Associated Bosch battery is not included in the scope of delivery and must be ordered separately.



Hex bit

for cordless shut-off screwdriver EXACT ION



Description	EDP No.
Cordless Screwdriver Bosch Exact Ion	6665.022
Battery pack for Bosch Exact Ion	6665.023
Battery Charger for Accu pack 220V	6665.024
Battery Charger for Accu pack 110V	6665.124

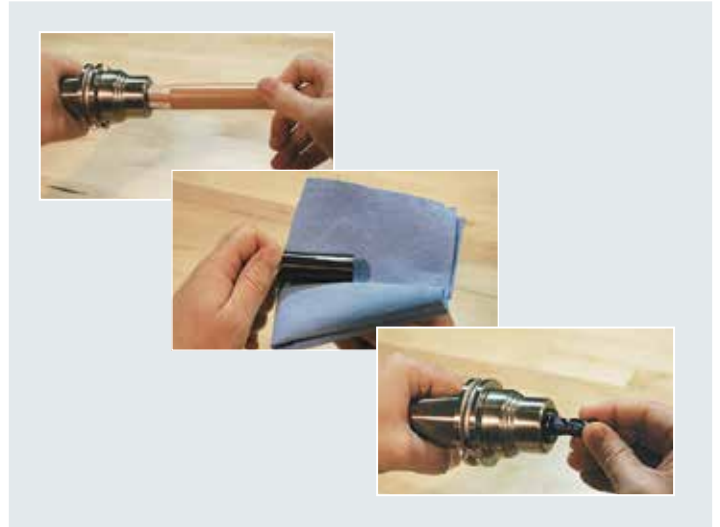
Width across flats	EDP No.
SW4 (4mm)	6665.026

FPC Chuck Operation

1. Inserting the collet:

Clean the inner taper of the FPC (for cleaning the inner cone we recommend our special taper cleaners (see page 25).

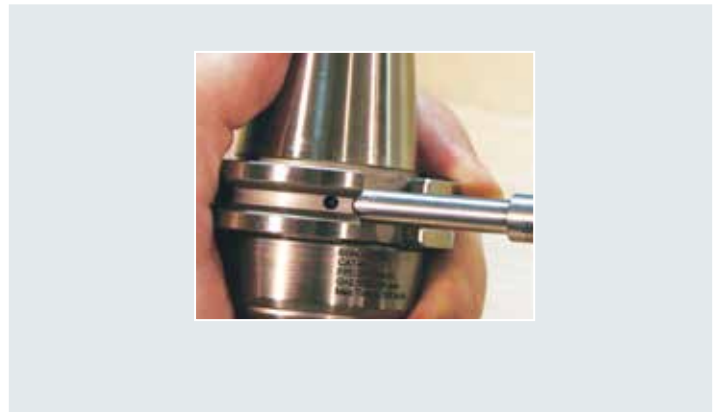
Manually screw the clean collet with the tool into the chuck until the collet connects with the taper. In order to achieve maximum clamping forces we recommend to degrease tool shank, inner and outer collet cone, as well as the inner cone of the FPC.



2. Clamping:

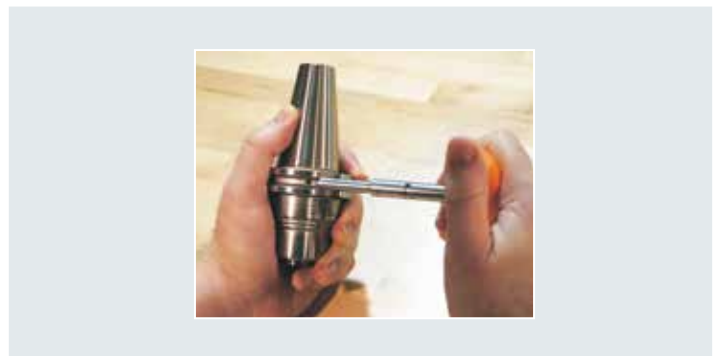
Clamping procedure starts by engaging the screw on the side of the FPC and rotating the hex key clockwise.

Caution: Insert the hex key as far as possible. Only use hex key with torque measurement. Max 10 Nm / 7.38 ft-lbs for torque



3. Loosening:

Loosen the collet by inserting the hex key and turning it counter clockwise. Full torque will be applied. Turn until the collet can be unscrewed manually.



4. Length stop:

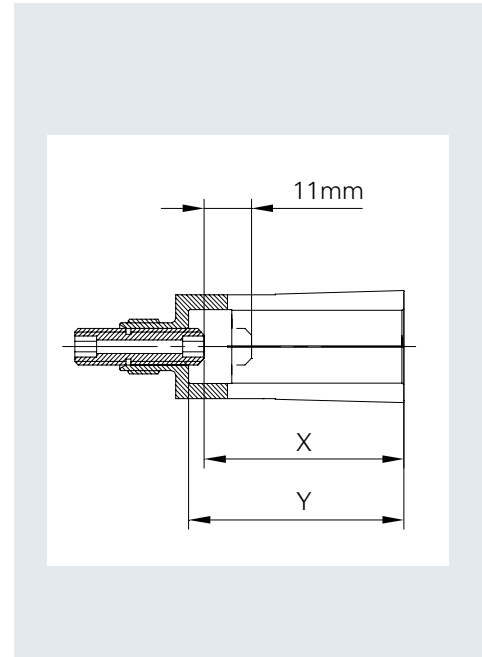
A length stop screw is located in the collet and can be adjusted with the hex key.



FPC Chuck Operation (continued)

5. Insertion depth of tool:

FPC type	Clamping Diameter/		X mm	Y mm
	mm	inch		
FPC14/FPC20	2 - 5	1/8"-3/16"	28	48
FPC14/FPC20	6	1/4"	36	
FPC14/FPC20	7-8.5	5/16"	36	
FPC14/FPC20	9	3/8"	40	
FPC14/FPC20	10		40	
FPC14/FPC20	11-14	7/16"-9/16"	45	
FPC20	15-18	5/8"-11/16"	48	60
FPC20	20	3/4"	50	
FPC25	16-18		48	
FPC25	20-22		50	
FPC25	25		56	
FPC25	32	1 1/4"	60	



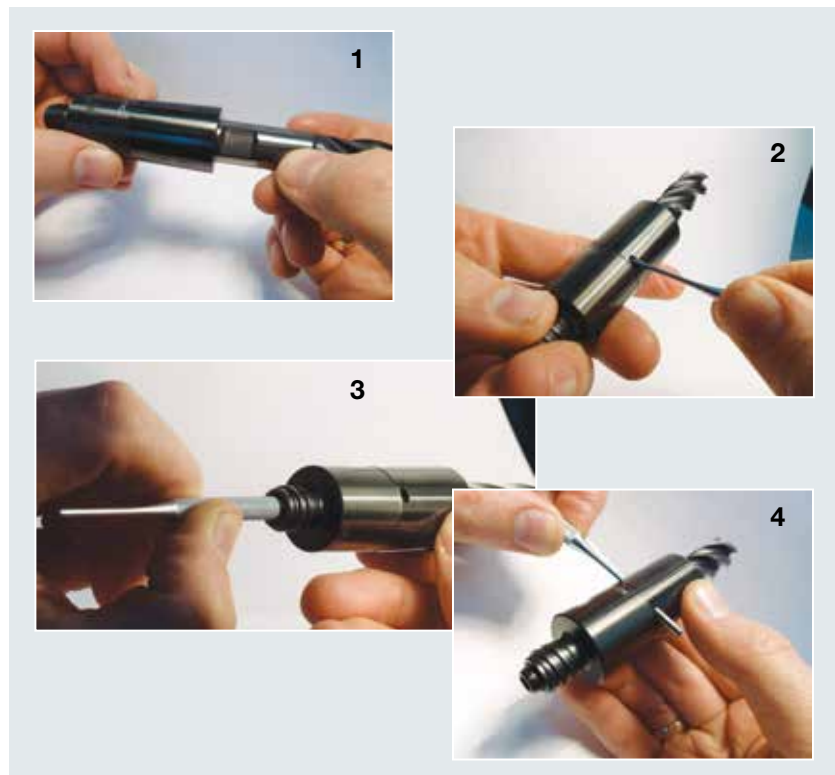
FPC Pin-Lock Operation

1. 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.





2. 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.

3. Free from backlash: With the assembly tool, the length stop screw must be set forward, pushing the Weldon flat of the cutting tool against the locking pin. Caution: Mounting without axial pressure can result in tool pullout. The collet with the secured tool can now be placed into the FPC chuck (see FPC operation manual).

4. Removing the tool: The length setting screw has to be unscrewed. The pin can be pressed out of the bore with the smallest diameter in the direction of the large diameter. Then the tool can be removed.



Icon Descriptions

 <p>For use with FPC Collets only</p>	 <p>≤ 3µm (micron) runout at 3x diameter length</p>
 <p>Balanced to G2.5, 20,000 RPM</p>	 <p>Taper quality AT3</p>

Assessment of Tool Holder Performance in Roughing

The dynamic vibrational behavior of different clamping mechanisms was evaluated using tool holders of similar dimensions. 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 tool holders.

Findings:

- Chatter frequencies occurring during milling tests seem independent of the clamping mechanism and the particular tool holder, and are caused by the tool or machine tool components.
- 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 machine surface are related.

Evaluated tool holder systems:



Test setup:

Machine: MC12 by Gebr. Heller

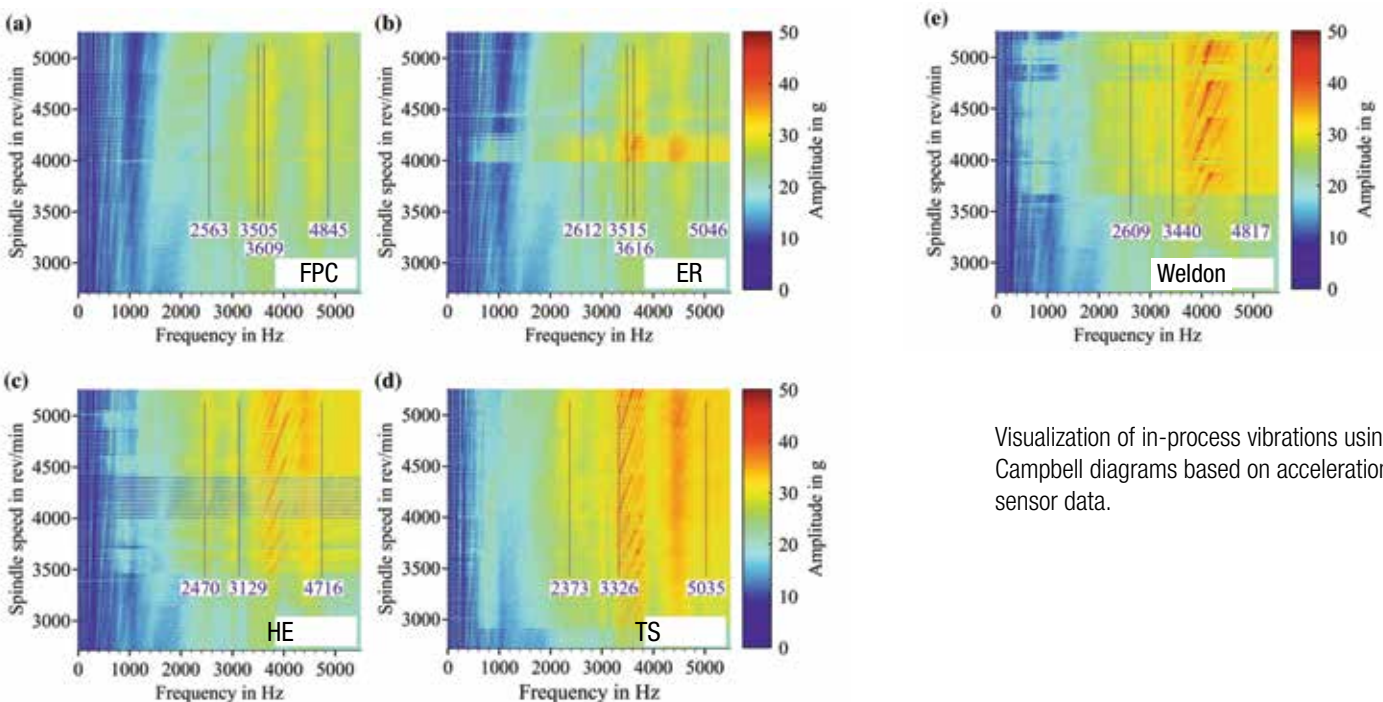
Tool: torus cutter, D=12, number of teeth=4

Material: Steel, 42CrMo4 (1.7225)

Cutting Parameters:

n= 3979 rev/min, fz= 0.04 mm/rev/tooth, ae= 7mm, ap= 18mm

FPC had the best results in comparison to the other tool holders:



Visualization of in-process vibrations using Campbell diagrams based on acceleration sensor data.

Case study conducted by: Rosenthal O. / Hintze W. / Möller C. (Published 08.01.2020 <https://doi.org/10.1007/s11740-019-00944-w> . Assessment of tool holder performance in roughing with end mills. Institute of Production Management and Technology, Hamburg University of Technology. Springer Nature)

EMUGE-FRANKEN FPC Chucks provide the longest tool life and highest safety compared to conventional technologies.

EMUGE-FRANKEN FPC Chucks – unbeatable performance, exceptionally long tool life.



Weldon
One-sided wear



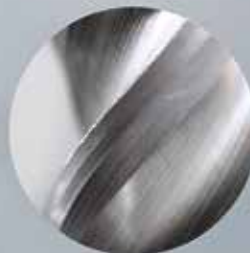
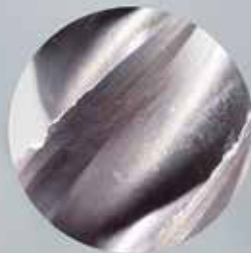
Hydraulic
Large nicks



Shrink Fit
Micro nicks



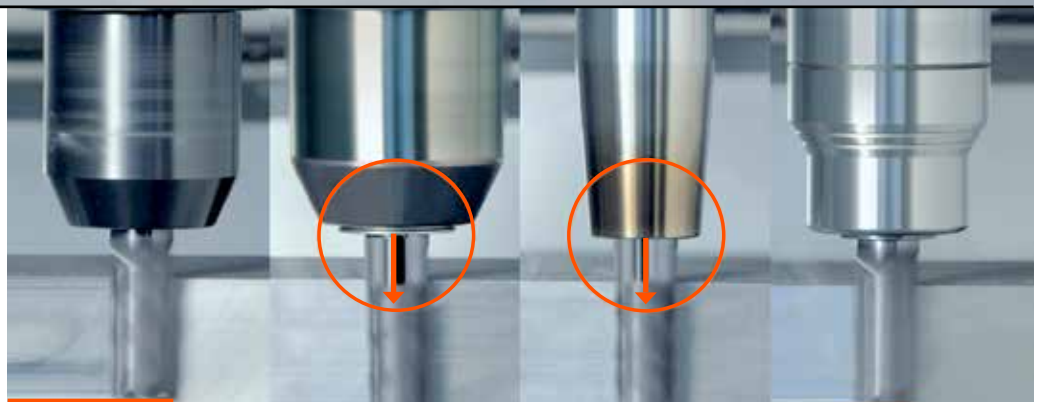
EMUGE-FRANKEN FPC Chuck
No nicks and minimal rounding



Test using 4-fluted end mill with identical material, machining speed and other parameters.

EMUGE-FRANKEN FPC Chucks – a Safe Bet.

Strong holding force via collet and taper assembly.



Weldon
Safe clamping but minimal vibration dampening and poor runout.

Hydraulic
Possible pull-out
Soft clamping allows for higher deflection at high feed rates. No pull-out protection.

Shrink Fit
Possible pull-out
Clamping force dependent on tool shank tolerance. Limited vibration dampening.

EMUGE-FRANKEN FPC Chuck
Strong clamping force via collet and taper assembly and Pin-Lock System **provides guaranteed holding power and pull-out protection.**



EMUGE Softsynchro® Tap Holders

Increase tool life & thread surface quality with our unique design featuring **patented constructional separation of the transmission of torque and axial force.**



Learn more at:
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