Innovative manufacturer of ultra-precise tool and workpiece motor spindles for milling, grinding, drilling and turning applications.

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NON-CONTACT PRECISION MOTION

Self-locking, spring-less clamping system HSK-tools: **SLH-x**

Levicron GmbH

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HSK clamping system - SLH-x

Self-locking spring-less clamping units for HSK toolings *(HSK-E 20; HSK-E 25; HSK-E 32; HSK-E 40 and HSK-E 63)*

About

Since then, conventional spring-based HSK clamping systems have suffered from several problems related to size, reliability, consistency, and influence on spindle dynamics.

Problems with conventional, spring-based HSK clamping systems:

- Large in size and complex constructions
- Inconsistent behavior over time concerning clamping position, pull-in force and shaft imbalance
- Damaged or fatigued disc-springs

To overcome these problems, we have developed our self-locking spring-less clamping system **(SLH-x)** for the hollow shank taper (HSK) interface. It is based on the principle of monolithically preloaded self-locking. This advanced technology makes it possible to securely and reliably hold the tool in the spindle while ensuring precise and stable clamping at a consistent position and significantly low imbalances. The clamping holds the HSK tool holder firmly and provides preloaded self-locking, which offers additional safety and stability.
By cutting numerous components compared to spring-based systems, our **SLH-x** is significantly more robust and compact than spring-based systems. Due to its size, it can even be used in low-height rotary tables or robots.

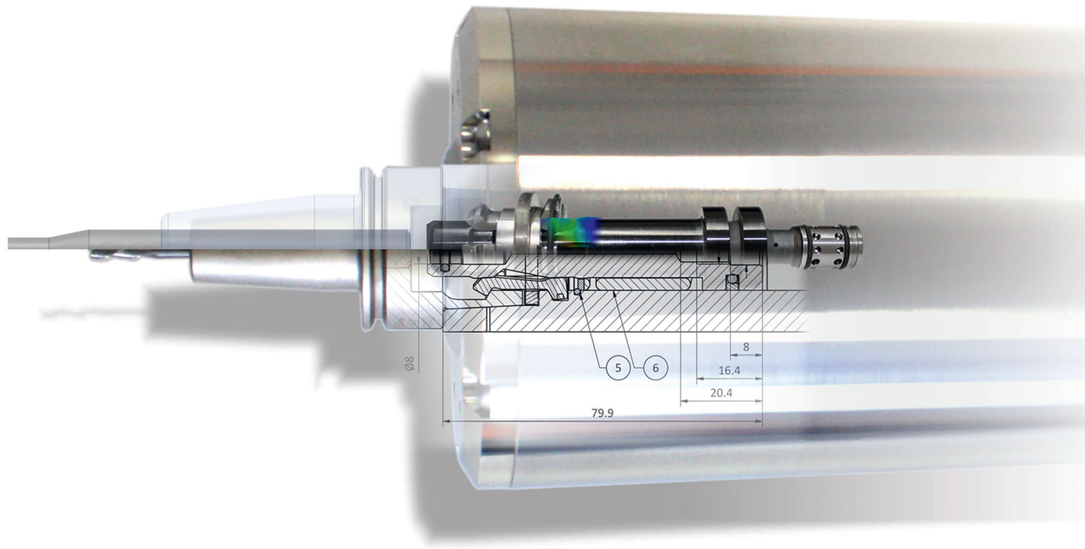
Your advantages with our SLH-x clamping system

The advantages for the end-user

- Consistent clamping and release position and clamping force even over 2 million tool change cycles
- Consistent balancing quality and outstanding shaft dynamics
- Particularly suitable for tool spindles for machining optical components
- Greatly increased speed stability
- Greatly improved reliability
- Maintenance-free

The advantages for the spindle manufacturer

- Reduction in the number of components to a minimum
- Ultra-compact design with a simple & robust design
- The shaft can be extracted without removing the clamping system
- Non-rotating push-pull rod possible
- Compared to spring-based systems, 70% reduced eject force to protect the shaft bearings



Data Sheet SLH-x

		SLH-20 *HSK-E 20*	**SLH-25** *HSK-E 25*	**SLH-32** *HSK-E 32*	**SLH-40** *HSK-E 40*	**SLH-63** *HSK-E 63*
Tool Interface	[-/-]	DIN 69893-5	DIN 69893-5	DIN 69893-5	DIN 69893-5	DIN 69893-5
max. Speed	[rpm]	150,000	90,000	80,000	60,000	40,000
Operating force, clamping	[N]	400	700	900	2,100	6,000
Operating force, releasing	[N]	≥ 400	≥ 800	≥ 1,000	≥ 2,000	≥ 6,500
Pull-in force at the interface	[N]	1,900 - 2,500	3,500 - 5,000	6,500 - 8,000	7,500 - 10,000	23,000 - 35,000
Nominal clamping position	[mm]	2.5	3	4	3.9	2.2
Nominal clamping stroke	[mm]	2.7	3.1	4.2	4.3	8,0
Additional clamping path of nominal clamping stroke without tool	[mm]	1.7	1.8	1.8	3.1	4.5
The diameter of the shaft bore	[mm]	10.5 H4	13.3 H4	16.8 H4	21 H4	33 H4
Overall length	[mm]	45	54	69	83.7	136
Connection thread	[-/-]	M5x0.5 5H LH	M6x0.75 6H LH	M6x1 6H LH	M8x1 6H LH	M10x1.5 6H LH
Guide bore diameter	[mm]	5.2 H5	6.3 H5	6.4 H5	8.5 H5	10.5 H5
Rotary feedthrough (optional)	[-/-]	No	No	No	Yes	Yes

Values of: May 2024

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