

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



LEVICRON
NON-CONTACT PRECISION MOTION

High-pressure aerostatic tool motor spindle with HSK-E 32: **UASD-H32/A**

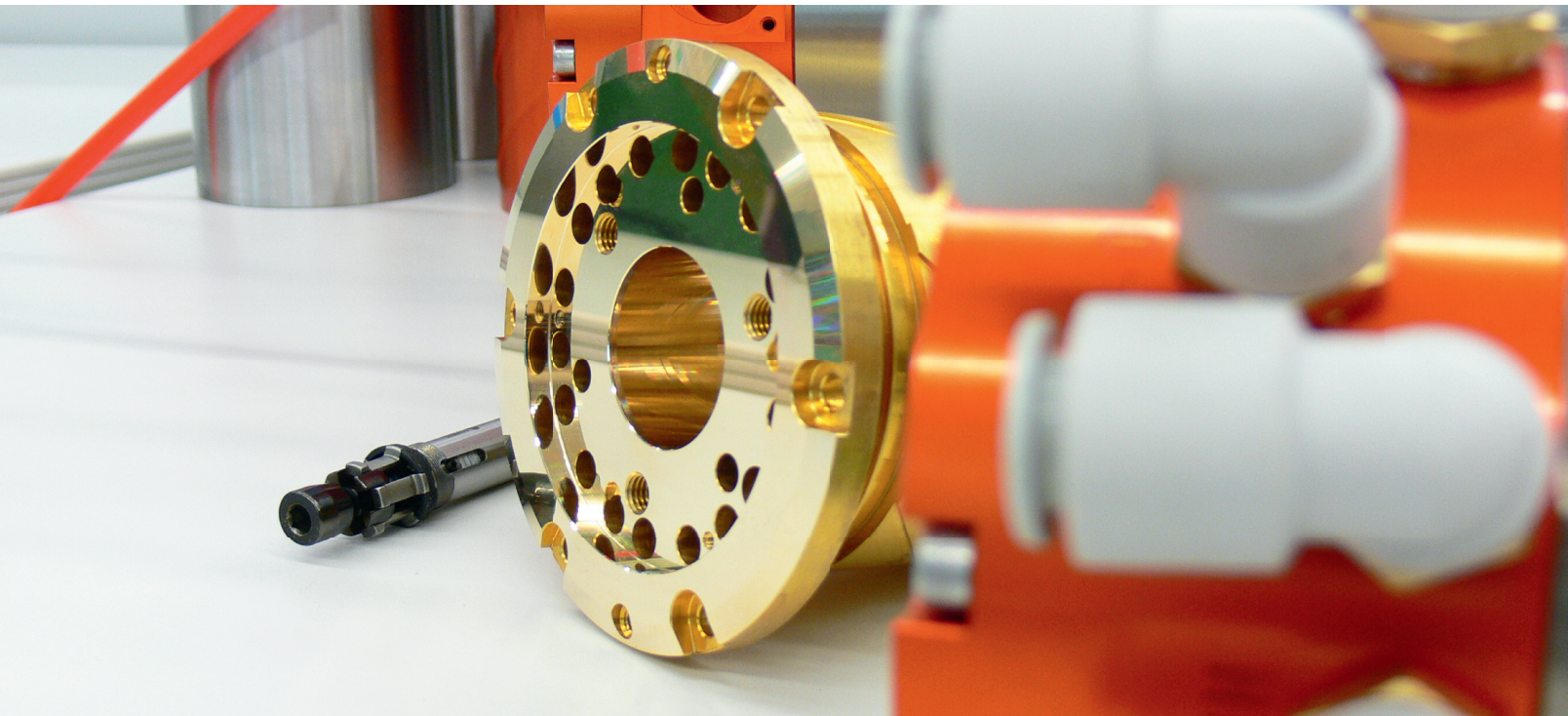


Levicron GmbH



UASD-H32/ UASD-H32A

High-pressure aerostatic tool motor spindle with HSK-E 32 interface (SLH-32)



General information at a glance

Tool interface	Automatic spring-less HSK-E 32 tool interface (SLH-32)
Housing diameter	Ø 100 mm
Available speeds	0 - 60.000 rpm; 0 - 80.000 rpm
Motor options	max. 400V - High performance, 0.7 Nm S1
	max. 200V - High performance, 0.7 Nm S1
	max. 400V - Iron-less 0.33 Nm S1
	max. 200V - Iron-less, 0.33 Nm S1
Angular position control	1 VSS SinCos, 80 lines, with reference
Tool change system	Pneumatic, 3 bit clamping status monitoring, taper cleaning air
Spindle cooling	Thin-film liquid cooling
Bearing system	Aerostatic (ASD-H32/A), 6 - 10 bar *)
	High-pressure aerostatic (UASD-H32/A), 20 - 30 bar
Accuracy, dynamics	Dynamic tool run-out < 0,8 µm **)
	Shaft Error in motion < 35 nm
Spindle connections	UASD-H32A: axially outgoing
	UASD-H32: radially outgoing

*) only with approval
**) when using the UTS-32 tool holder series

Values of: May 2024

About

Based on our numerous successes with high-pressure aerostatic technology, we have driven forward the development of our **UASD-H32/A** on the basis of our proven UASD-H25 and UASD-H25A. The models differ only in their interface and are technically identical. As with all our spindle solutions with a HSK interface, the **UASD-H32/A** also uses our proven, spring-less tool clamping system SLH-x in the size and shape of **HSK-E 32**. This means that machine manufacturers who prefer a size 32 interface can now use our tool spindle.

These spindles not only combine the speed and smooth running of aerostatic spindle systems, but also enable higher chip removal rates thanks to the increased load capacity and rigidity. The integrated permanent magnet synchronous motor is designed such as the overload limit of the motor is just below that of the bearing system, thus ensuring comfortable protection of the bearing system.



Higher chip removal rates due to the higher load capacity and rigidity



High speeds for micro-machining up to 80,000 rpm



With an automatic and spring-less HSK-E 32 tool interface (SLH-32)



Lenght: approx. 408/ 470 mm

Weight: approx. 16 kg

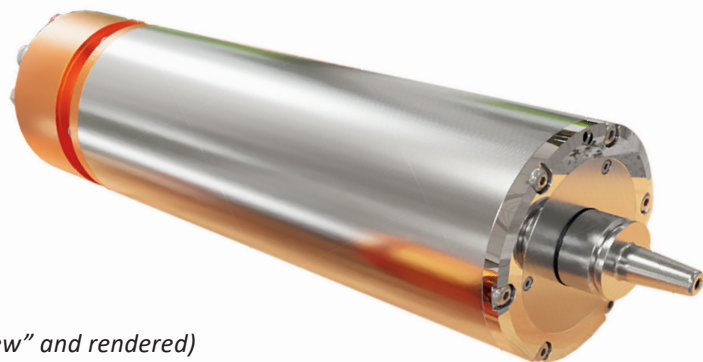
Housing diameter: Ø 100 mm

High-Pressure Aerostatic Bearing System (UASD-H32A)

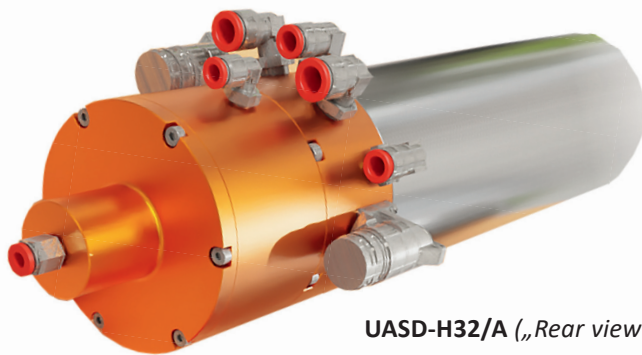
ASD-H32A & UASD-H32A in comparison *)		ASD060H32A	UASD060H32A **)
Tool interface	[-/-]	HSK-E 32 (SLH-32)	HSK-E 32 (SLH-32)
Bearing air supply pressure	[bar]	6-10	20-30
Available speed	[rpm]	0 - 60,000	0 - 60,000
Radial load capacity at the spindle nose	[N]	330	900
Axial load capacity at the spindle nose	[N]	650	1,300
Static radial zero point stiffness at the spindle nose	[N/ µm]	41	83
Static axial zero point stiffness at the spindle nose	[N/ µm]	60	75
Static air consumption	[l/ min]	50	120
Dynamic tool run-out ***)	[µm]	< 0.4	< 0.5
Shaft Error in motion ***)	[nm]	< 23	< 30

*) ASD-H25A= aerostatic; UASD-H32A= high-pressure aerostatic
**) all values at 20 bar bearing feed pressure (gauge pressure)
***) when using the UTS-32 tool holder series

Values of: May 2024



UASD-H32/A (“front view” and rendered)



UASD-H32/A („Rear view“ and rendered)

Data sheet UASD-H32/A (speeds up to 60,000 rpm)

UASD060H32 (radial) UASD060H32A (axial)

General	Housing diameter	[mm]	100	100
	Length over all	[mm]	470	408
	Weight	[kg]	16	16
	Available Speed	[rpm]	0 - 60,000	0 - 60,000
	Tool interface	[-]	HSK-E 32 (SLH-32)	HSK-E 32 (SLH-32)
	Tool clamp status monitoring	[-]	3 bit digital	3 bit digital
Motor option, „High performance“, max. 400V	Motor type	[-]	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1	[Nm]	0.7	0.7
	Number of poles	[-]	2	2
	max. Phase voltage	[V]	270	270
	Rated current	[A]	10	10
	Peak current	[A]	20	20
Motor option, „High performance“, max. 200V	Shaft power	[kVA]	4.3	4.3
	Motor type	[-]	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1	[Nm]	0.7	0.7
	Number of poles	[-]	2	2
	max. Phase voltage	[V]	170	170
	Rated current	[A]	18	18
Motor option, „Iron-less“, max. 400V	Peak current	[A]	36	36
	Shaft power	[kVA]	4.2	4.2
	Motor type	[-]	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1	[Nm]	0.33	0.33
	Number of poles	[-]	2	2
	max. Phase voltage	[V]	260	260
Motor option, „Iron-less“, max. 200V	Rated current	[A]	5	5
	Peak current	[A]	11	11
	Shaft power	[kVA]	2.1	2.1
	Motor type	[-]	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1	[Nm]	0.33	0.33
	Number of poles	[-]	2	2
Rotary encoder	max. Phase voltage	[V]	160	160
	Rated current	[A]	9	9
	Peak current	[A]	18	18
	Shaft power	[kVA]	2.1	2.1
Bearing system	Encoder type	[-]	incremental	incremental
	Periods	[-]	80	80
	Signal A/B	[-]	SinCos, 1 VSS	SinCos, 1 VSS
	Zero flag	[-]	yes (digital/ analog)	yes (digital/ analog)
Stability and precision	Bearing supply pressure	[bar]	20 - 30	20 - 30
	Air cleanliness, ISO 8573	[-]	3 or better	3 or better
	Dew point at supply pressure	[°C]	3	3
	Radial zero point stiffness at the spindle nose, static	[N/μm]	> 70	> 70
	Radial load capacity at the spindle nose, static	[N]	> 900	> 900
	Axial zero point stiffness at the spindle nose, static	[N/μm]	> 80	> 80
	Axial load capacity at the spindle nose, static	[N]	> 1,300	> 1,300
	Taper run-out TIR	[nm]	< 100	< 100
	Shaft Error in motion	[nm]	< 30	< 30
	Dynamic tool run-out *)	[μm]	< 0.7	< 0.7
	Spindle soak time	[min]	< 3	< 3
	Axial shaft growth	[μm]	< 3	< 3

all values at 20 bar bearing feed pressure (gauge pressure) | *) when using the tool holder series UTS-32

Values of: May 2024

Data sheet UASD-H32/A (speeds up to 80,000 rpm)

UASD080H32 (radial) UASD080H32A (axial)

General	Housing diameter	[mm]	100	100
	Length over all	[mm]	470	408
	Weight	[kg]	16	16
	Available Speed	[rpm]	0 - 80,000	0 - 80,000
	Tool interface	[-]	HSK-E 32 (SLH-32)	HSK-E 32 (SLH-32)
	Tool clamp status monitoring	[-]	3 bit digital	3 bit digital
Motor option, „High performance“, max. 400V	Motor type	[-]	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1	[Nm]	0.7	0.7
	Number of poles	[-]	2	2
	max. Phase voltage	[V]	370	370
	Rated current	[A]	10	10
	Peak current	[A]	20	20
Motor option, „High performance“, max. 200V	Shaft power	[kVA]	5.8	5.8
	Motor type	[-]	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1	[Nm]	0.7	0.7
	Number of poles	[-]	2	2
	max. Phase voltage	[V]	205	205
	Rated current	[A]	18	18
Motor option, „Iron-less“, max. 400V	Peak current	[A]	36	36
	Shaft power	[kVA]	5.6	5.6
	Motor type	[-]	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1	[Nm]	0.33	0.33
	Number of poles	[-]	2	2
	max. Phase voltage	[V]	330	330
Motor option, „Iron-less“, max. 200V	Rated current	[A]	5	5
	Peak current	[A]	11	11
	Shaft power	[kVA]	2.8	2.8
	Motor type	[-]	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1	[Nm]	0.33	0.33
	Number of poles	[-]	2	2
Rotary encoder	max. Phase voltage	[V]	180	180
	Rated current	[A]	9	9
	Peak current	[A]	18	18
	Shaft power	[kVA]	2.8	2.8
Bearing system	Encoder type	[-]	incremental	incremental
	Periods	[-]	80	80
	Signal A/B	[-]	SinCos, 1VSS	SinCos, 1VSS
	Zero flag	[-]	yes (digital/ analog)	yes (digital/ analog)
Stability and precision	Bearing supply pressure	[bar]	20-30	20-30
	Air cleanliness, ISO 8573	[-]	3 or better	3 or better
	Dew point at supply pressure	[°C]	3	3
	Radial zero point stiffness at the spindle nose, static	[N/μm]	> 60	> 60
	Radial load capacity at the spindle nose, static	[N]	> 800	> 800
	Axial zero point stiffness at the spindle nose, static	[N/μm]	> 70	> 70
	Axial load capacity at the spindle nose, static	[N]	> 1,200	> 1,200
	Taper run-out TIR	[nm]	< 100	< 100
	Shaft Error in motion	[nm]	< 35	< 35
	Dynamic tool run-out *)	[μm]	< 1	< 1
	Spindle soak time	[min]	< 3	< 3
	Axial shaft growth	[μm]	< 5	< 5

all values at 20 bar bearing feed pressure (gauge pressure) | *) when using the tool holder series UTS-32

Values of: May 2024



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