

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 25: U/ASD-H25A

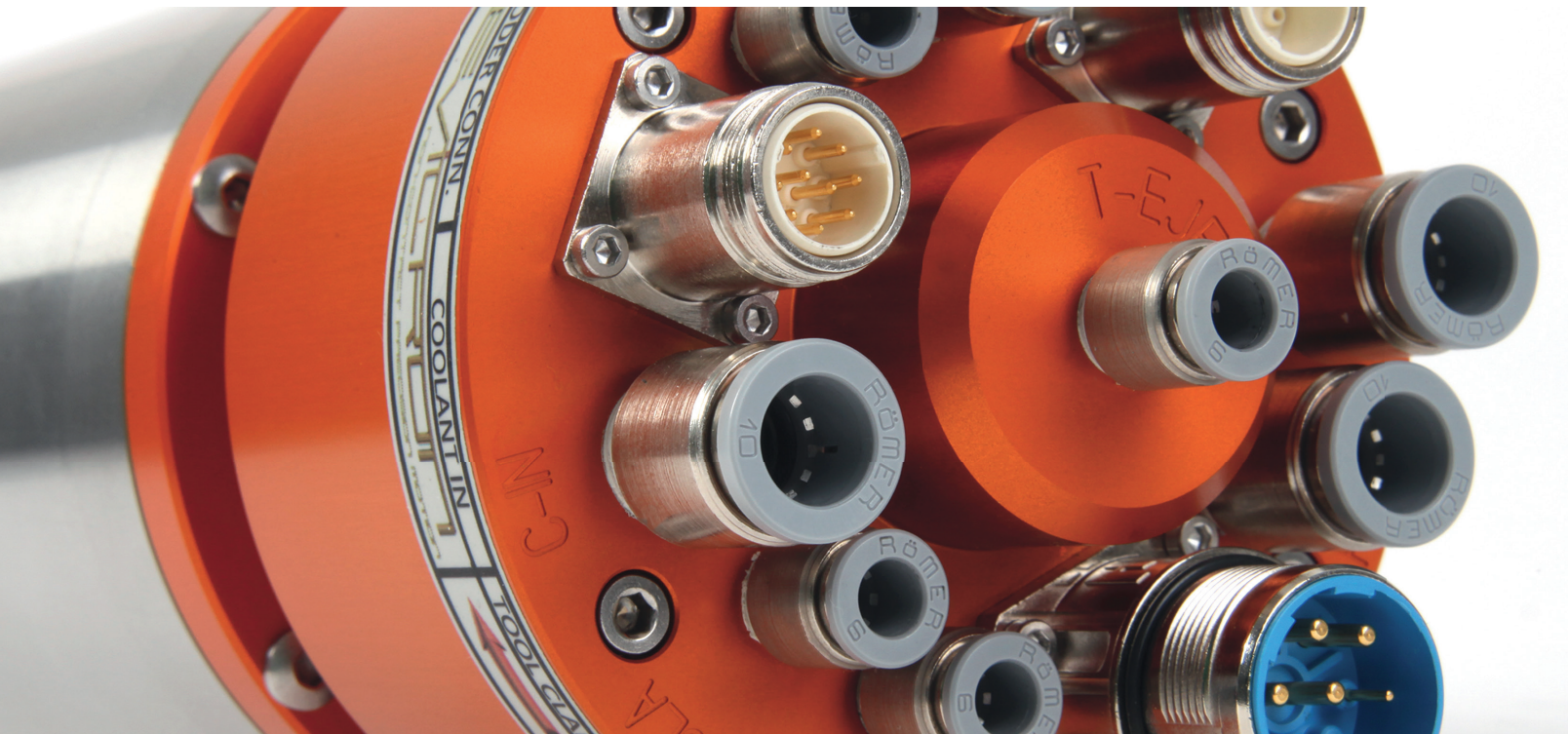


with axially outgoing spindle connections



ASD-H25A/ UASD-H25A (with axial (A) outgoing spindle connections)

(High-pressure) aerostaic tool motor spindle with HSK-E 25 interface (SLH-25)



General information at a glance

Tool interface	Automatic spring-less HSK-E 25 tool interface (SLH-25)
Housing diameter	Ø 100 mm
Available speeds	0 - 60,000 rpm; 0 - 80,000 rpm; 0 - 90,000 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, zero flag
Tool change system	Pneumatic, 3 bit clamping status monitoring, taper cleaning air
Spindle cooling	Thin-film liquid cooling
Bearing system	Aerostatic (ASD-H25A), 6-10 bar
	High-Pressure Aerostatic (UASD-H25A), 20-30 bar
Accuracy, dynamics	Dynamic tool run-out < 0.5 µm *)
	Shaft Error in motion < 30 nm
Spindle connections	Axially outgoing (Dmax 100 mm)

*) when using the tool holder series UTS-25

Values of: May 2024

About

Our ASD-H25A (aerostatic) and UASD-H25A (high-pressure aerostatic) models meet all the requirements for high-quality spindles for producing optical-quality surfaces with maximum precision. They combine robustness and functionality for multi-axis CNC machining at high speeds for micromachining and minimal spindle errors in accordance with DIN ISO 230-7, which are crucial for the machining of optical components. Our spindles are characterized by a high-resolution rotary encoder and extremely efficient thin-film liquid cooling. In addition, they offer monitoring of the clamping status and a standardized housing diameter of 100 mm (h5). For CNC machining, they are also available with our hybrid bearing system, which significantly increases overload and collision safety and is suitable for tools up to a diameter of 4 mm.

For users in precision machining, this results in unprecedented accuracy, thermal stability and the ability to machine optical surfaces in milling and grinding applications. In ultra-precision machining, the high chip removal – together with an automated tool change – enables a significant increase in productivity and automation.



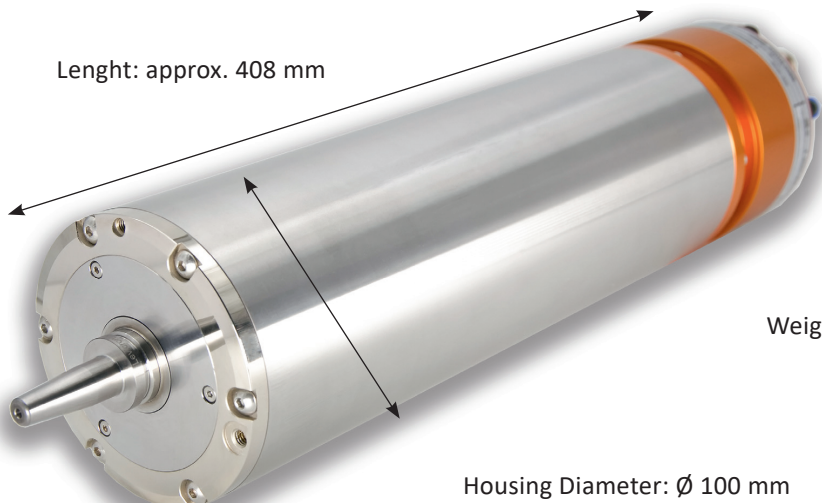
High speeds for micro-machining
up to 90,000 rpm



Minimal spindle errors for the
machining of optical components



With an automatic and spring-less
HSK-E 25 tool interface (SLH-25)



High-Pressure Aerostatic Bearing System (UASD-H25A)

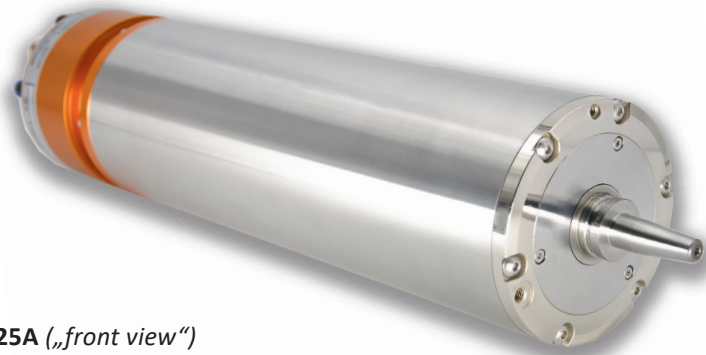
ASD-H25A & UASD-H25A in comparison *)		ASD060H25A	UASD060H25A **)
Bearing air supply pressure	[bar]	6-10	20-30
Available speed	[rpm]	0 - 60,000	0 - 60,000
Radial load capacity at the spindle nose	[N]	330	900
Axial load capacity at the spindle nose	[N]	650	1,300
Static radial zero point stiffness at the 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	< 0.3
Shaft Error in motion ***)	[nm]	< 23	< 28

*) ASD-H25A= aerostatic; UASD-H25A= high-pressure aerostatic

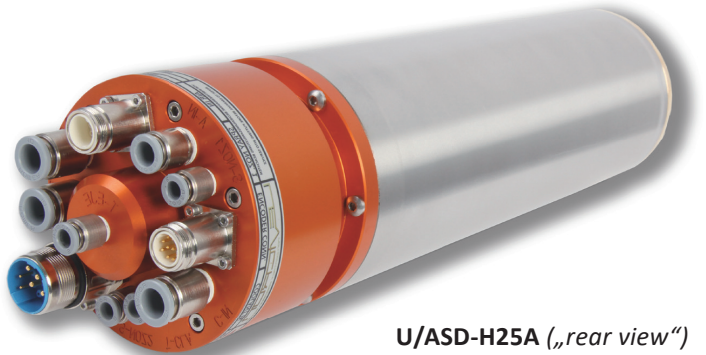
**) all values at 20 bar bearing feed pressure (gauge pressure)

***) when using the UTS-25 tool holder series

Values of: May 2024



U/ASD-H25A („front view“)



U/ASD-H25A („rear view“)

Data Sheet ASD-H25A (Aerostatic)

		ASD060H25A	ASD080H25A	ASD090H25A
General	Housing diameter [mm]	100	100	100
	Length over all [mm]	408	408	408
	Weight [kg]	16	16	16
	Available Speeds [rpm]	0 - 60,000	0 - 80,000	0 - 90,000
	Tool interface [-]	HSK-E 25 (SLH-25)	HSK-E 25 (SLH-25)	HSK-E 25 (SLH-25)
	Tool clamp status monitoring [-]	3 bit digital	3 bit digital	3 bit digital
Motor option „High performance“, max. 400V	Motor type [-]	3 phases, synchronous	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1 [Nm]	0.7	0.7	0.7
	Number of poles [-]	2	2	2
	max. Phase voltage [V]	270	370	410
	Rated current [A]	10	10	10
	Peak current [A]	20	20	20
Motor option „High performance“, max. 200V	Shaft power [kVA]	4.3	5.8	6.5
	Motor type [-]	3 phases, synchronous	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1 [Nm]	0.7	0.7	0.7
	Number of poles [-]	2	2	2
	max. Phase voltage [V]	170	205	235
	Rated current [A]	18	18	18
Motor option “Iron-less”, max. 400V	Peak current [A]	36	36	36
	Shaft power [kVA]	4.2	5.6	6.3
	Motor type [-]	3 phases, synchronous	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1 [Nm]	0.33	0.33	0.33
	Number of poles [-]	2	2	2
	max. Phase voltage [V]	260	330	380
Motor option “Iron-less”, max. 200V	Rated current [A]	5	5	5
	Peak current [A]	11	11	11
	Shaft power [kVA]	2.1	2.8	3
	Motor type [-]	3 phases, synchronous	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1 [Nm]	0.33	0.33	0.33
	Number of poles [-]	2	2	2
Rotary encoder	max. Phase voltage [V]	160	180	208
	Rated current [A]	9	9	9
	Peak current [A]	18	18	18
	Shaft power [kVA]	2.1	2.8	3
Bearing system	Encoder type [-]	incremental	incremental	incremental
	Periods [-]	80	80	80
	Signal A/B [-]	SinCos, 1 VSS	SinCos, 1 VSS	SinCos, 1 VSS
	Zero flag [-]	yes (digital/ analog)	yes (digital/ analog)	yes (digital/ analog)
Stability and precision	Bearing supply pressure [bar]	6-10	6-10	6-10
	Air cleanliness, ISO 8573 [-]	3 or better	3 or better	3 or better
	Radial zero point stiffness at the spindle nose, static [N/μm]	> 40	> 25	> 20
	Radial load capacity at the spindle nose, static [N]	> 330	> 300	> 280
	Axial zero point stiffness at the spindle nose, static [N/μm]	> 60	> 40	> 30
	Axial load capacity at the spindle nose, static [N]	> 600	> 550	> 500
Stability and precision	Taper run-out TIR [nm]	< 100	< 100	< 100
	Shaft Error in motion [nm]	< 30	< 35	< 45
	Dynamic tool run-out *) [μm]	< 0.5	< 1	< 1.2
	Spindle soak time [min]	< 3	< 3	< 3
	Axial shaft growth [μm]	< 3	< 5	< 6

all values at 6 bar bearing feed pressure (gauge pressure)
*) when using the UTS-25 tool holder series

Values of: May 2024

Data Sheet UASD-H25A (High-Pressure Aerostatic)

		UASD060H25A	UASD080H25A	UASD090H25A
General	Housing diameter [mm]	100	100	100
	Length over all [mm]	408	408	408
	Weight [kg]	16	16	16
	Available Speeds [rpm]	0 - 60,000	0 - 80,000	0 - 90,000
	Tool interface [-]	HSK-E 25 (SLH-25)	HSK-E 25 (SLH-25)	HSK-E 25 (SLH-25)
	Tool clamp status monitoring [-]	3 bit digital	3 bit digital	3 bit digital
Motor option „High performance“, max. 400V	Motor type [-]	3 phases, synchronous	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1 [Nm]	0.7	0.7	0.7
	Number of poles [-]	2	2	2
	max. Phase voltage [V]	270	370	410
	Rated current [A]	10	10	10
	Peak current [A]	20	20	20
Motor option „High performance“, max. 200V	Shaft power [kVA]	4.3	5.8	6.5
	Motor type [-]	3 phases, synchronous	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1 [Nm]	0.7	0.7	0.7
	Number of poles [-]	2	2	2
	max. Phase voltage [V]	170	205	235
	Rated current [A]	18	18	18
Motor option “Iron-less”, max. 400V	Peak current [A]	36	36	36
	Shaft power [kVA]	4.2	5.6	6.3
	Motor type [-]	3 phases, synchronous	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1 [Nm]	0.33	0.33	0.33
	Number of poles [-]	2	2	2
	max. Phase voltage [V]	260	330	380
Motor option “Iron-less”, max. 200V	Rated current [A]	5	5	5
	Peak current [A]	11	11	11
	Shaft power [kVA]	2.1	2.8	3
	Motor type [-]	3 phases, synchronous	3 phases, synchronous	3 phases, synchronous
	Constant torque, S1 [Nm]	0.33	0.33	0.33
	Number of poles [-]	2	2	2
Rotary encoder	max. Phase voltage [V]	160	180	208
	Rated current [A]	9	9	9
	Peak current [A]	18	18	18
	Shaft power [kVA]	2.1	2.8	3
Bearing system	Encoder type [-]	incremental	incremental	incremental
	Periods [-]	80	80	80
	Signal A/B [-]	SinCos, 1 VSS	SinCos, 1 VSS	SinCos, 1 VSS
	Zero flag [-]	yes (digital/ analog)	yes (digital/ analog)	yes (digital/ analog)
Stability and precision	Bearing supply pressure [bar]	20-30	20-30	20-30
	Air cleanliness, ISO 8573 [-]	3 or better	3 or better	3 or better
	Radial zero point stiffness at the spindle nose, static [N/μm]	> 70	> 50	> 35
	Radial load capacity at the spindle nose, static [N]	> 900	> 800	> 750
	Axial zero point stiffness at the spindle nose, static [N/μm]	> 70	> 60	> 50
	Axial load capacity at the spindle nose, static [N]	> 1,300	> 1,200	> 1,100
Stability and precision	Taper run-out TIR [nm]	< 100	< 100	< 100
	Shaft Error in motion [nm]	< 35	< 40	< 50
	Dynamic tool run-out *) [μm]	< 0.5	< 1	< 1.2
	Spindle soak time [min]	< 3	< 3	< 3
	Axial shaft growth [μm]	< 3	< 5	< 6

all values at 20 bar bearing feed pressure (gauge pressure)
*) when using the UTS-25 tool holder series

Values of: May 2024



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