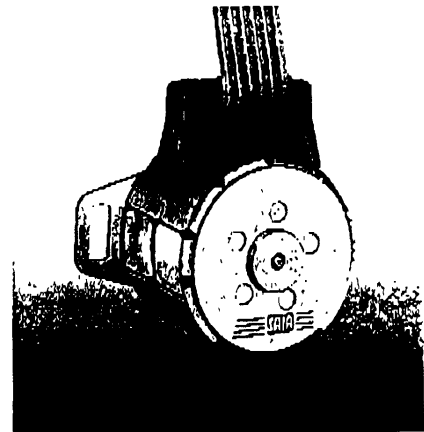


318-9375

SAIA® Stepper motors Series UAG 1/2, 18°



Technical data

Mechanical data

Step angle α	18°	
Steps per revolution z	20	
Holding torque at P_n (100% duty cycle)	UAG1: 5.7 mNm	UAG2: 4.2 mNm
Direction of rotation	reversible	
Axial force	max. 1 N	
Lateral force (max. 6 mm from motor)	max. 2 N	
Rotor inertia J_R	0.3 gcm ²	
Rotor spindle	steel; hardened, ground and polished	
Rotor spindle bearings	sintered bronze; self-lubricating	

Electrical data

Bipolar-operation UAG1	2-phase stepper motor		
Number of windings	2		
Resistance per winding (for 100% duty cycle)	27 Ω	150 Ω	675 Ω
Rated voltage U_n	6 V	12 V	24 V
Power consumption per phase	0.75 W	0.74 W	0.75 W

Unipolar-operation UAG2	4-phase stepper motor		
Number of windings	4		
Resistance per winding (for 100% duty cycle)	35 Ω	170 Ω	700 Ω
Rated voltage U_n	6 V	12 V	24 V
Power consumption per phase	0.78 W	0.74 W	0.77 W
Voltage test to earth	500 V, 50 Hz, 1 min		

Thermal data

Thermal resistance at $f = 0$ Hz	approx. 40K/W	
Time constant	approx. 8 min	
Cycle time for <100% duty cycle	max. 5 min	
Winding temperature	max. 130°C	
Ambient temperature	Operation: -40°C to +85°C Storage: -40°C to +100°C	

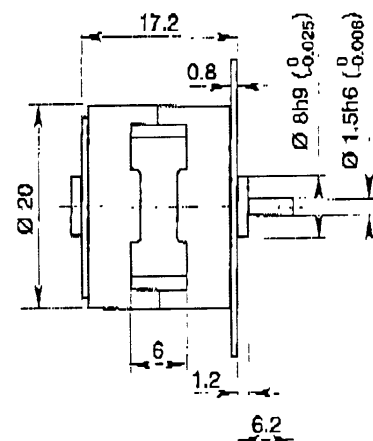
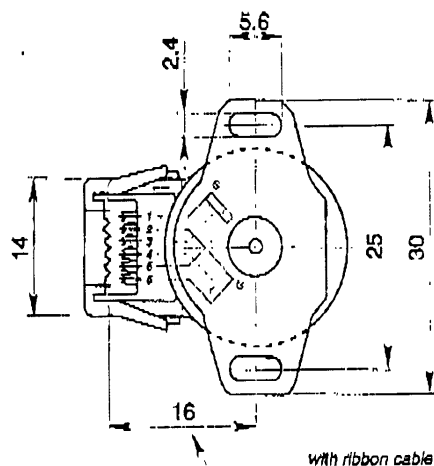
General data

Mounting	any position, with screw plate
Connections	insulation displacement connection for ribbon cables AWG 28 ¹⁾
Weight	approx. 25 g
External dimensions	Ø 20 x 17.20 mm

¹⁾ Ribbon cables (length 100 mm) are only supplied when specially ordered.

Dimension drawings

Mounting with screw plate



Example of ordering

UAG	Motor type
1	1: 2-phase stepper motor 2: 4-phase stepper motor
3	Mounting with screw plate, rotor shaft Ø 1.5 mm
150 Ω	Resistance per winding
N	N: Standard connection (without a ribbon cable)
C	C: Connection with a ribbon cable (100 mm) and AMP Micro-MuTch connector (D 215083-6)

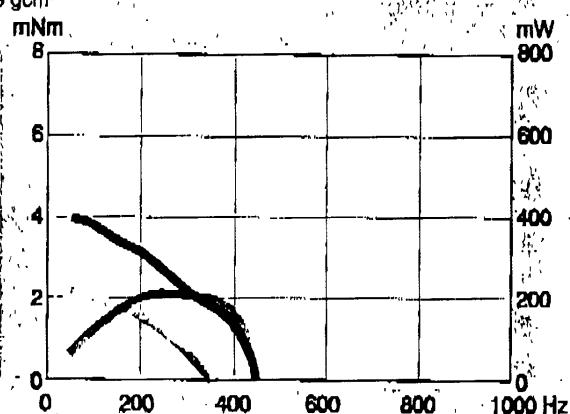
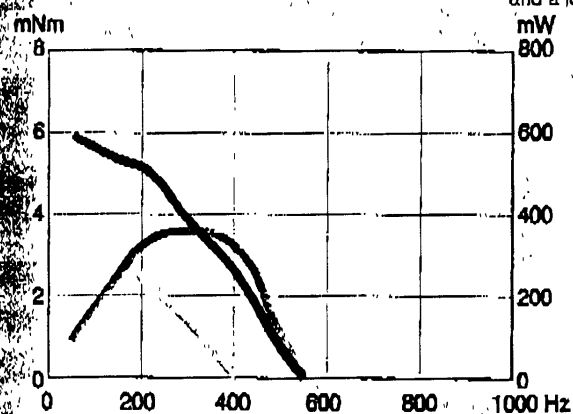
2-phase stepper motor

UAG 1

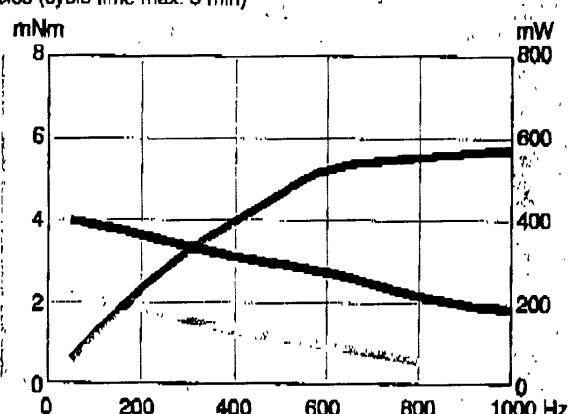
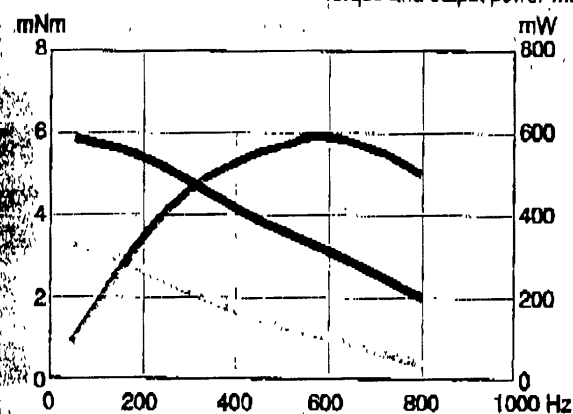
4-phase stepper motor

UAG 2

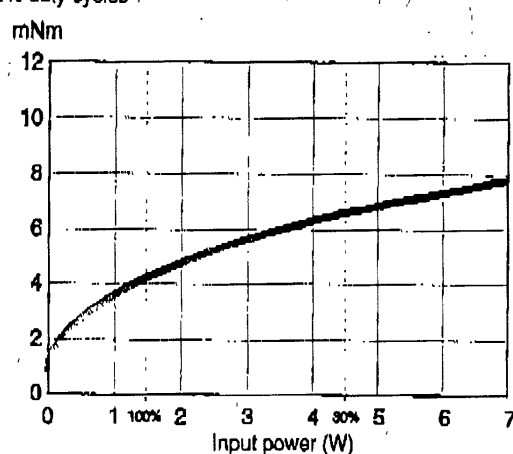
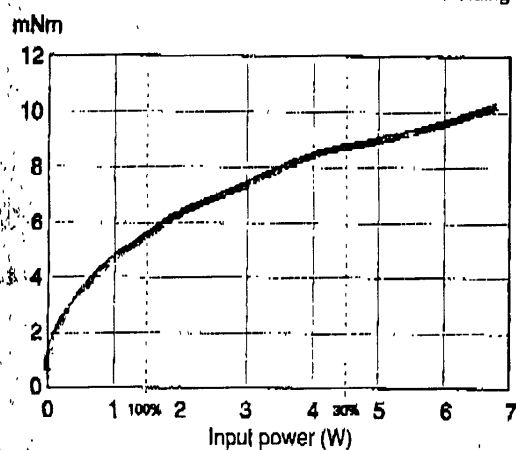
Start range (pull-in) with constant voltage power stage.
Torque and output power with different duty cycles (cycle time max. 5 min)
and a load inertia J_L of 0.9 gcm²



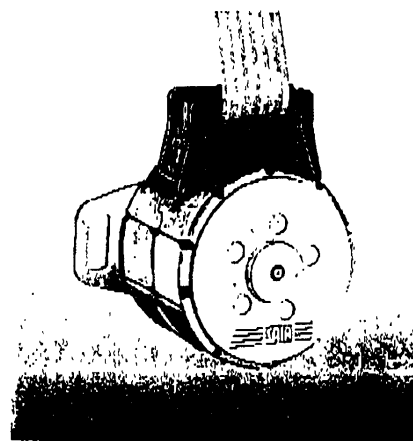
Slew range (pull-out) with constant voltage power stage;
Torque and output power with different duty cycles (cycle time max. 5 min)



Holding torque with 30% and 100% duty cycles



SAIA® Reversible synchronous motors Series UAT1



Application areas

HVAC, automotive industry, instrumentation (optical, medical, control and measuring equipment), printers.

Major new characteristics

- Small diameter: 20 mm
- Little volume vs. high torque
- Insulation displacement technique - Ribbon cables
- New stator and rotor concept

Electrical data

Supply voltage V_n	24 V, 48 V; 50/60 Hz
Voltage tolerance	±15%, with torques guaranteed
Insulation voltage	500V, 50 Hz, 1 min
Power consumption P_m	approx. 1/1.1 W at 50 and 60 Hz

Mechanical data

Speed n	600 rpm at 50 Hz 720 rpm at 60 Hz
Running torque M_d	2 mNm at 600/720 rpm
Power output P_{out}	0.125 W at 50 Hz 0.15 W at 60 Hz
Axial force	max. 1 N
Lateral force (max. 6 mm from motor)	max. 2 N
Load moment of inertia	max. 0.2 gcm ²
Standstill	immediately on current supply interruption
Rotor stalling	the motor can be stopped when voltage is applied, without being overheated
Rotor shaft	steel; hardened, ground and polished

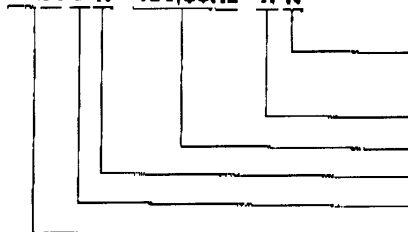
General data

Ambient temperature T_{amb}	-15°C to +65°C, continuously permitted
Winding temperature	max. 120°C
Mounting	any position, with screw plate
Connections	insulation displacement connection for ribbon cables AWG 28 ¹⁾
Weight	approx. 25 g
External dimensions	Ø 20 x 17.20 mm

1) Ribbon cables (length 100 mm) are only supplied when specially ordered.

Order specification

UAT1 3 N - 48V/50Hz - R N



- N:** Standard connection (without a ribbon cable)
- C:** Connection with a ribbon cable (100 mm) and AMP Micro-MaTch connector (0-215083-6)
- R:** Reversible
- V:** Voltage-frequency (see supply voltage)
- N:** Standard approval
- 3:** With screw plate, rotor shaft Ø 1.5 mm
- Series**

Reversible synchronous motor

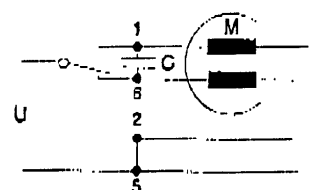
UAT 1

Capacitor C	V _n motor	C ¹⁾ 50Hz	C ¹⁾ 60Hz	VC _n
	48 VAC	0.68 µF	0.68 µF	80 VAC
	24 VAC	2.2 µF	2.2 µF	40 VAC

1) Capacitance tolerance $\pm 10\%$

Capacitors are only supplied when specially ordered

Connection diagram



Switch on 6 = clockwise rotation

Switch on 1 = counterclockwise rotation

Dimension drawings

Mounting with screw plate

