

ST Serie - Schritt-Motoren



- Permanentmagnet DC - Schrittmotoren
- Klauenpol-Ausführung (Dosenmotor)
- hohe Lebensdauer
- 3 Baugrößen mit jeweils mehreren Wicklungsoptionen
- Haltemomente von 10 bis 125mNm
- Wicklungen für 5V und 12V unipolar oder 5V bipolar
- elektrische Anschlüsse: Stecker / flying leads (optional Stecker)
- optionales Getriebe
- Sonderausführungen möglich (Zahnräder, Wellenkonfiguration, Sonderwicklungen, Stecker)

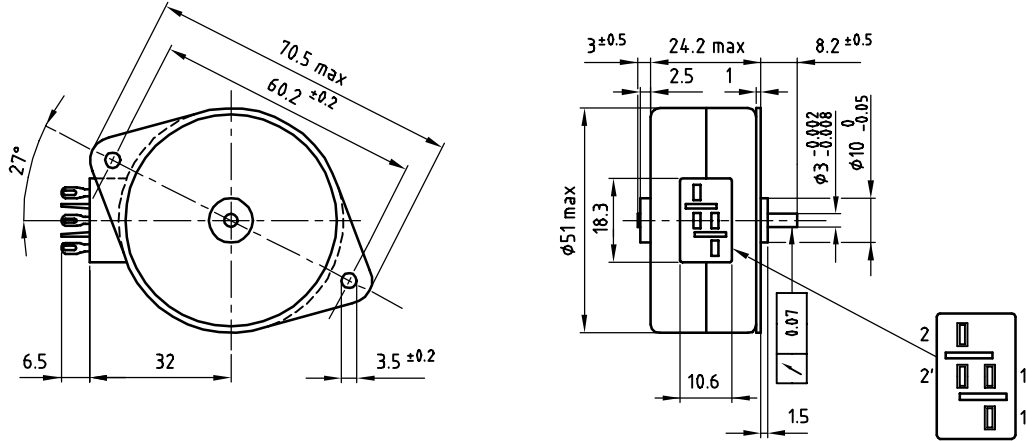
Motortyp	Motor Performance							Stirnrad-Getriebe	
	Wicklung	Spannung	Haltemoment	max. Betriebsmoment	Leistung	Schrittwinkel	Baugröße	Typ	Drehmoment
		Vdc	mNm	mNm	W	°	d x h mm		Nm
ST32 UNI	unipolar	5 / 12	10	6 - 7,5	2	7,5	35 x 21,5	S49A / S52A / S70A	0,1 - 3
ST32 BI	bipolar	5	11,5	8,5	2	7,5	35 x 21,5	S49A / S52A / S70A	0,1 - 3
ST31 UNI	unipolar	5 / 12	28 - 46	20 - 33	3,5 - 3,8	7,5	51 x 24,2	S52A / S70A / S70B	0,1 - 10
ST31 BI	bipolar	5	55	45	3,5	7,5	51 x 24,2	S52A / S70A / S70B	0,1 - 10
ST35 UNI	unipolar	5 / 12	85 - 100	57 - 80	5,3	7,5	56,3 x 33,5	S70A / S70B	0,2 - 10
ST35 BI	bipolar	5	125	95	5	7,5	56,3 x 33,5	S70A / S70B	0,2 - 10
ST36 UNI	unipolar	5 / 12	60	32 - 37	5,3	15	56,3 x 33,5	S70A / S70B	0,2 - 10
ST36 BI	bipolar	5	65	48	5	15	56,3 x 33,5	S70A / S70B	0,2 - 10

ST31 BI

Stepper motor

45 mNm

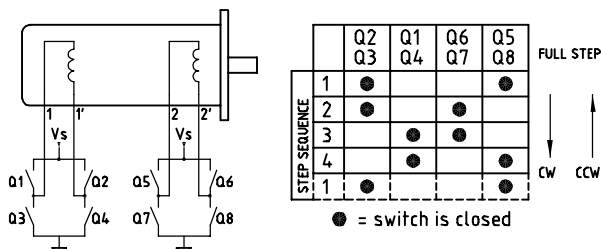
Dimensional drawing



Motor data

Motor order number	9904 112 +	31206
Number of phases		2
Drive Electronics		Bipolar
Nominal Voltage	[V]	5
Number of steps per revolution		48
Step angle	[°]	7.5
Step angle tolerance	[°]	± 0.4
Max. working Torque	[mNm]	45
Holding Torque	[mNm]	55
Absorbed power	[W]	3.5
Resistance per phase	[Ohm]	7
Inductance per phase	[mH]	18
Current per phase	[mA]	500
Thermal resistance winding-ambient	[K/W]	13
Rotor Moment of Inertia	[kgm ²]	1.1x10 ⁻⁶

Electrical Connection



General data

x	Type of bearings	sleeve	
x	Maximum radial load	5	N
x	Maximum axial load	1.5	N
x	Ambient temp. range operating	-20/+70	°C
x	Ambient temp. range storage	-40/+100	°C
x	Mass of motor	170	g

Product combinations

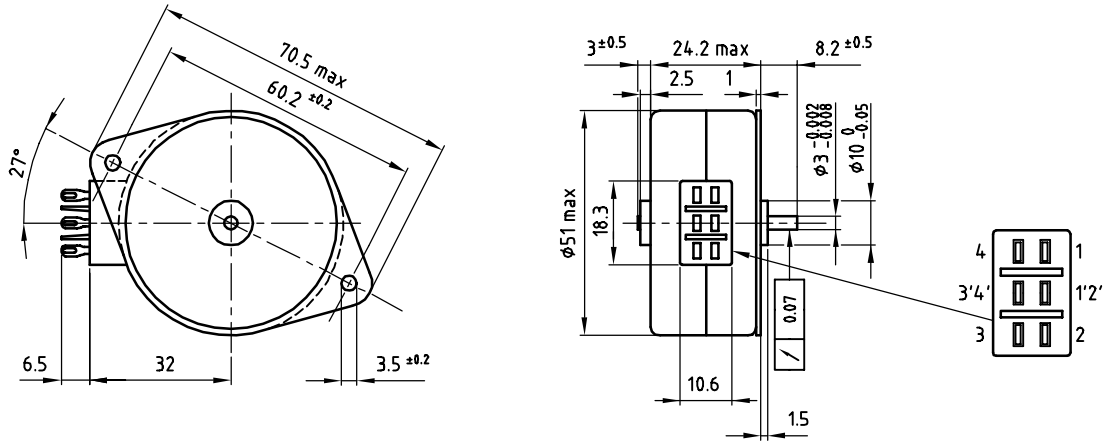
- x Gearbox S52A
- x Gearbox S70A
- x Gearbox S70B

ST31 UNI

Stepper motor

24/33 mNm

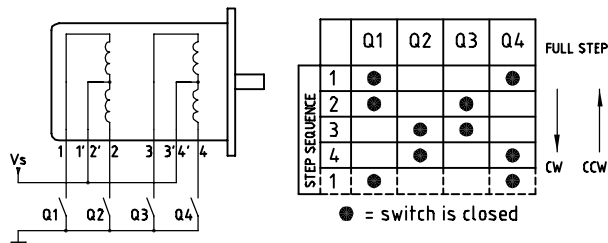
Dimensional drawing



Motor data

Motor order number	9904 112 +	31104	31004	31106	31006
Number of phases		4	4	4	4
Drive Electronics		Unipolar	Unipolar	Unipolar	Unipolar
Nominal Voltage	[V]	5	12	5	12
Number of steps per revolution		48	48	48	48
Step angle	[°]	7.5	7.5	7.5	7.5
Step angle tolerance	[°]	± 0.4	± 0.4	± 0.4	± 0.4
Max. working Torque	[mNm]	24	20	33	30
Holding Torque	[mNm]	32	28	46	42
Absorbed power	[W]	3.5	3.8	3.5	3.8
Resistance per phase	[Ohm]	11	65	11	65
Inductance per phase	[mH]	16	100	16	100
Current per phase	[mA]	400	175	400	175
Thermal resistance winding-ambient	[K/W]	13	13	13	13
Rotor Moment of Inertia	[kgm ²]	1.1x10 ⁻⁶	1.1x10 ⁻⁶	1.1x10 ⁻⁶	1.1x10 ⁻⁶

Electrical Connection



General data

×	Type of bearings	sleeve	
×	Maximum radial load	5	N
×	Maximum axial load	1.5	N
×	Ambient temp. range operating	-20/+70	°C
×	Ambient temp. range storage	-40/+100	°C
×	Mass of motor	170	g

Product combinations

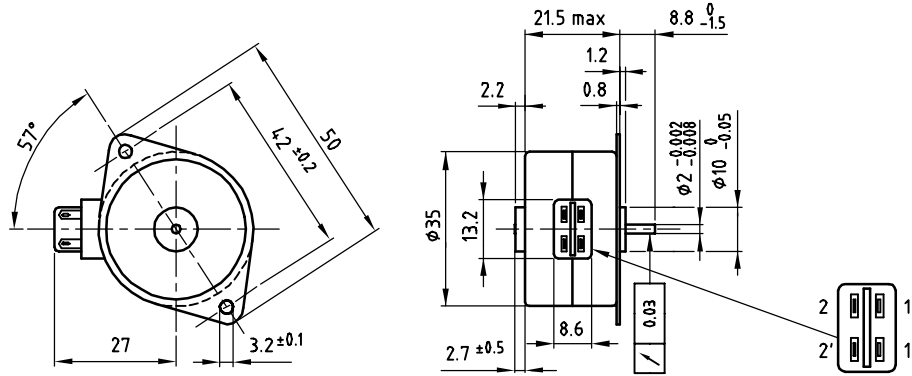
- ×
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- x Gearbox S52A
 x Gearbox S70A
 x Gearbox S70B

ST32 BI

Stepper motor

8.5 mNm

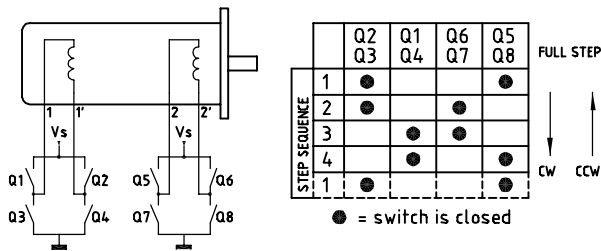
Dimensional drawing



Motor data

Motor order number	9904 112 +	32204
Number of phases		2
Drive Electronics		Bipolar
Nominal Voltage	[V]	5
Number of steps per revolution		48
Step angle	[°]	7.5
Step angle tolerance	[°]	± 0.7
Max. working Torque	[mNm]	8.5
Holding Torque	[mNm]	11.5
Absorbed power	[W]	2
Resistance per phase	[Ohm]	7.7
Inductance per phase	[mH]	16
Current per phase	[mA]	360
Thermal resistance winding-ambient	[K/W]	25
Rotor Moment of Inertia	[kgm ²]	0.26x10 ⁻⁶

Electrical Connection



General data

x	Type of bearings	sleeve	
x	Maximum radial load	2.5	N
x	Maximum axial load	0.75	N
x	Ambient temp. range operating	-20/+70	°C
x	Ambient temp. range storage	-40/+100	°C
x	Mass of motor	70	g

Product combinations

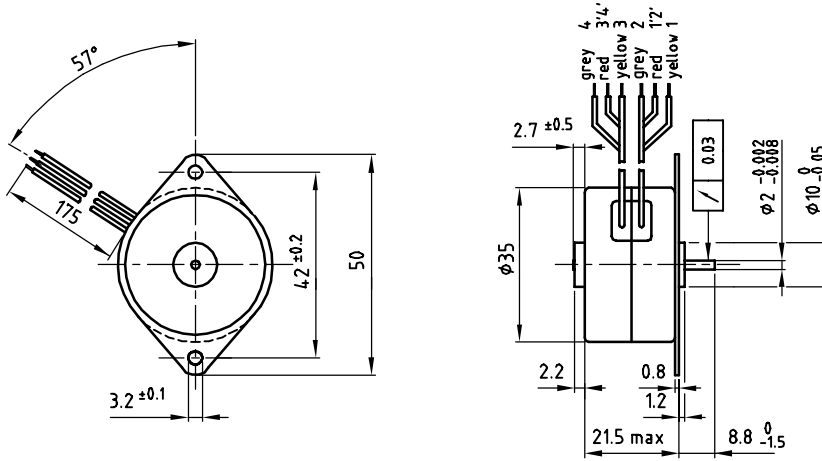
- x Gearbox S49A
- x Gearbox S52A
- x Gearbox S70A

ST32 UNI

Stepper motor

7.5 mNm

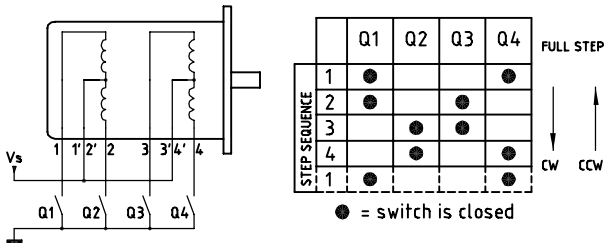
Dimensional drawing



Motor data

Motor order number	9904 112 +	32101	32001	
Number of phases		4	4	
Drive Electronics		Unipolar	Unipolar	
Nominal Voltage	[V]	5	12	
Number of steps per revolution		48	48	
Step angle	[°]	7.5	7.5	
Step angle tolerance	[°]	± 0.7	± 0.7	
Max. working Torque	[mNm]	7.5	6	
Holding Torque	[mNm]	10	10	
Absorbed power	[W]	2	2	
Resistance per phase	[Ohm]	21	120	
Inductance per phase	[mH]	30	160	
Current per phase	[mA]	220	100	
Thermal resistance winding-ambient	[K/W]	25	25	
Rotor Moment of Inertia	[kgm ²]	0.26x10 ⁻⁶	0.26x10 ⁻⁶	

Electrical Connection



General data

x	Type of bearings	sleeve	
x	Maximum radial load	2.5	N
x	Maximum axial load	0.75	N
x	Ambient temp. range operating	-20/+70	°C
x	Ambient temp. range storage	-40/+100	°C
x	Mass of motor	80	g

Product combinations

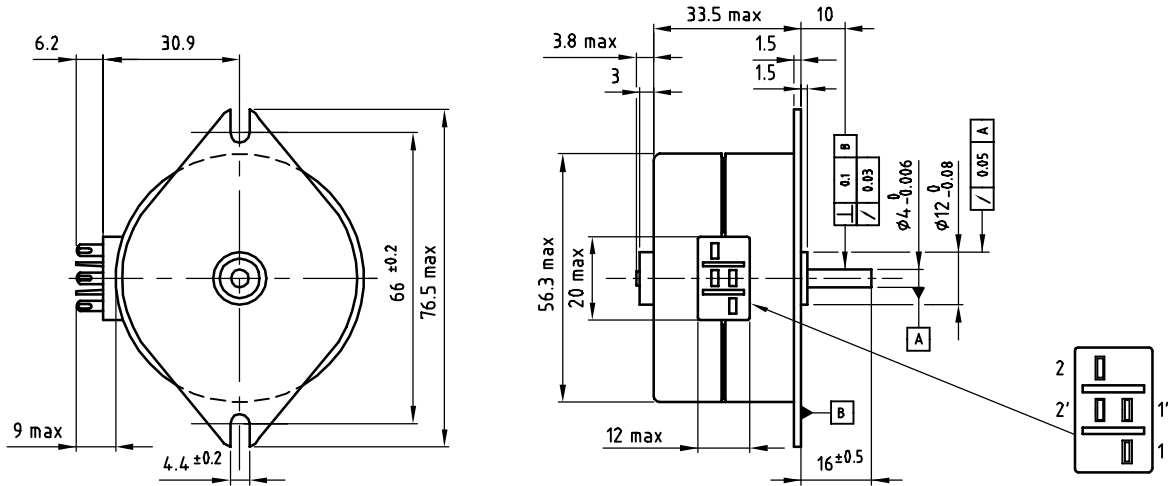
- x Gearbox S49A
- x Gearbox S52A
- x Gearbox S70A

ST35 BI

Stepper motor

95 mNm

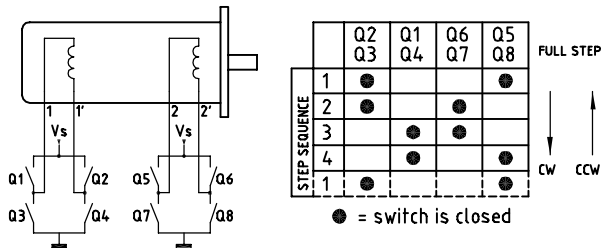
Dimensional drawing



Motor data

Motor order number	9904 112 +	35216
Number of phases		2
Drive Electronics		Bipolar
Nominal Voltage	[V]	5
Number of steps per revolution		48
Step angle	[°]	7.5
Step angle tolerance	[°]	± 0.4
Max. working Torque	[mNm]	95
Holding Torque	[mNm]	125
Absorbed power	[W]	5
Resistance per phase	[Ohm]	8.5
Inductance per phase	[mH]	130
Current per phase	[mA]	500
Thermal resistance winding-ambient	[K/W]	10
Rotor Moment of Inertia	[kgm ²]	4.5x10 ⁻⁶

Electrical Connection



General data

x	Type of bearings	sleeve	
x	Maximum radial load	10	N
x	Maximum axial load	1.5	N
x	Ambient temp. range operating	-20/+70	°C
x	Ambient temp. range storage	-40/+100	°C
x	Mass of motor	300	g

Product combinations

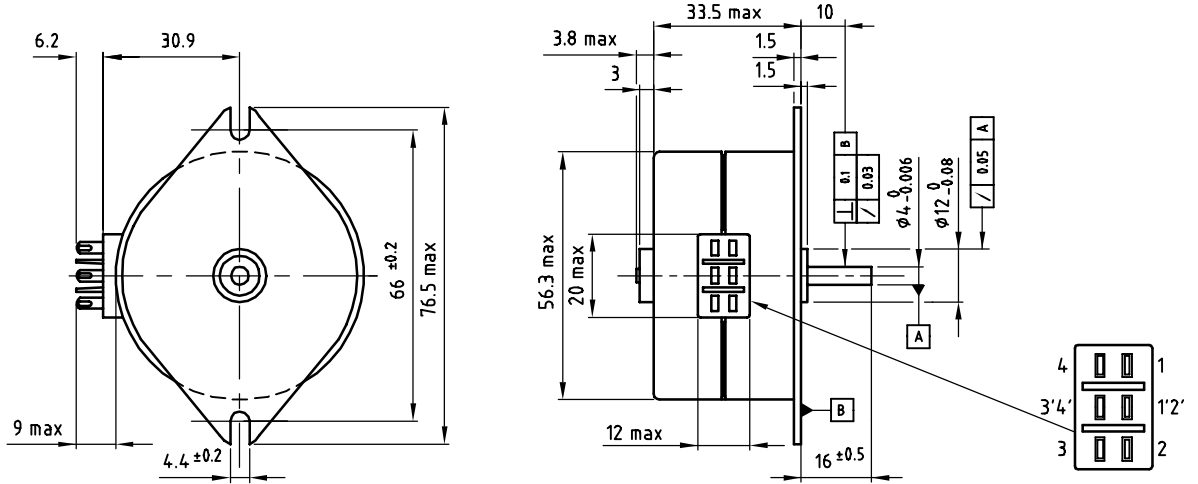
- x Gearbox S70A (Motor shaft must be φ3x8.2)
- x Gearbox S70B (Motor shaft must be φ3x8.2)

ST35 UNI

Stepper motor

65/80 mNm

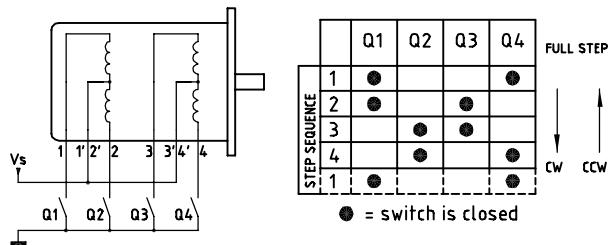
Dimensional drawing



Motor data

Motor order number	9904 112 +	35114	35014	35116	35016
Number of phases		4	4	4	4
Drive Electronics		Unipolar	Unipolar	Unipolar	Unipolar
Nominal Voltage	[V]	5	12	5	12
Number of steps per revolution		48	48	48	48
Step angle	[°]	7.5	7.5	7.5	7.5
Step angle tolerance	[°]	± 0.4	± 0.4	± 0.4	± 0.4
Max. working Torque	[mNm]	65	57	80	78
Holding Torque	[mNm]	85	85	100	100
Absorbed power	[W]	5.3	5.3	5.3	5.3
Resistance per phase	[Ohm]	7.7	4.7	7.7	4.7
Inductance per phase	[mH]	65	400	65	400
Current per phase	[mA]	575	240	575	240
Thermal resistance winding-ambient	[K/W]	10	10	10	10
Rotor Moment of Inertia	[kgm ²]	4.5x10 ⁻⁶	4.5x10 ⁻⁶	4.5x10 ⁻⁶	4.5x10 ⁻⁶

Electrical Connection



General data

Symbol	Parameter	Value	Unit
x	Type of bearings	sleeve	
x	Maximum radial load	10	N
x	Maximum axial load	1.5	N
x	Ambient temp. range operating	-20/+70	°C
x	Ambient temp. range storage	-40/+100	°C
x	Mass of motor	300	g

Product combinations

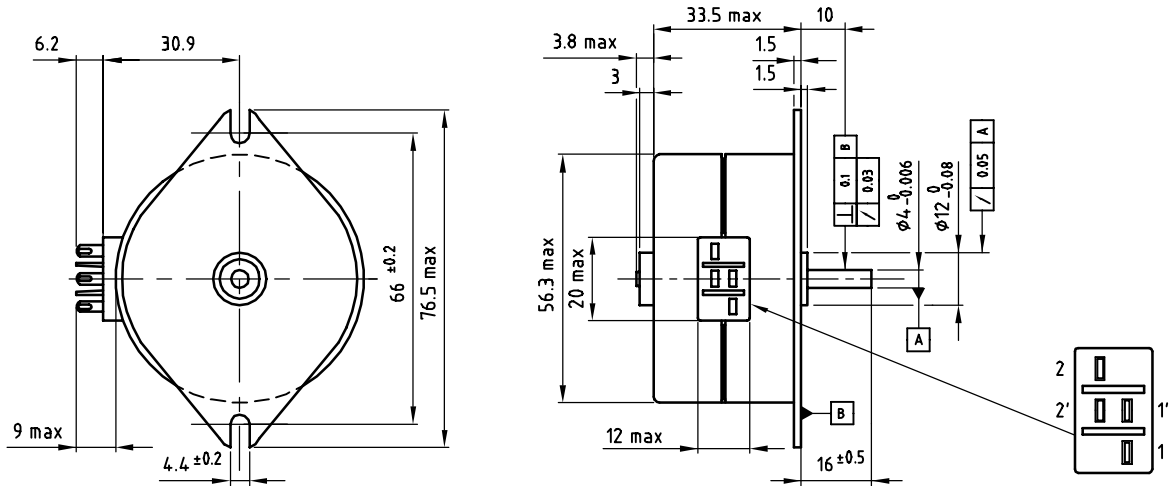
- x Gearbox S70A (Motor shaft must be φ3x8.2)
- x Gearbox S70B (Motor shaft must be φ3x8.2)

ST36 BI

Stepper motor

48 mNm

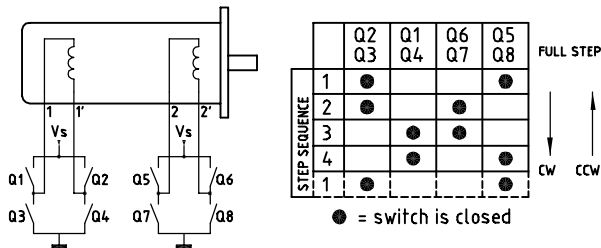
Dimensional drawing



Motor data

Motor order number	9904 112 +	36214	
Number of phases		2	
Drive Electronics		Bipolar	
Nominal Voltage	[V]	5	
Number of steps per revolution		24	
Step angle	[°]	15	
Step angle tolerance	[°]	± 0.7	
Max. working Torque	[mNm]	48	
Holding Torque	[mNm]	65	
Absorbed power	[W]	5	
Resistance per phase	[Ohm]	8.5	
Inductance per phase	[mH]	55	
Current per phase	[mA]	500	
Thermal resistance winding-ambient	[K/W]	11	
Rotor Moment of Inertia	[kgm ²]	4.5x10 ⁻⁶	

Electrical Connection



General data

x	Type of bearings	sleeve	
x	Maximum radial load	10	N
x	Maximum axial load	1.5	N
x	Ambient temp. range operating	-20/+70	°C
x	Ambient temp. range storage	-40/+100	°C
x	Mass of motor	300	g

Product combinations

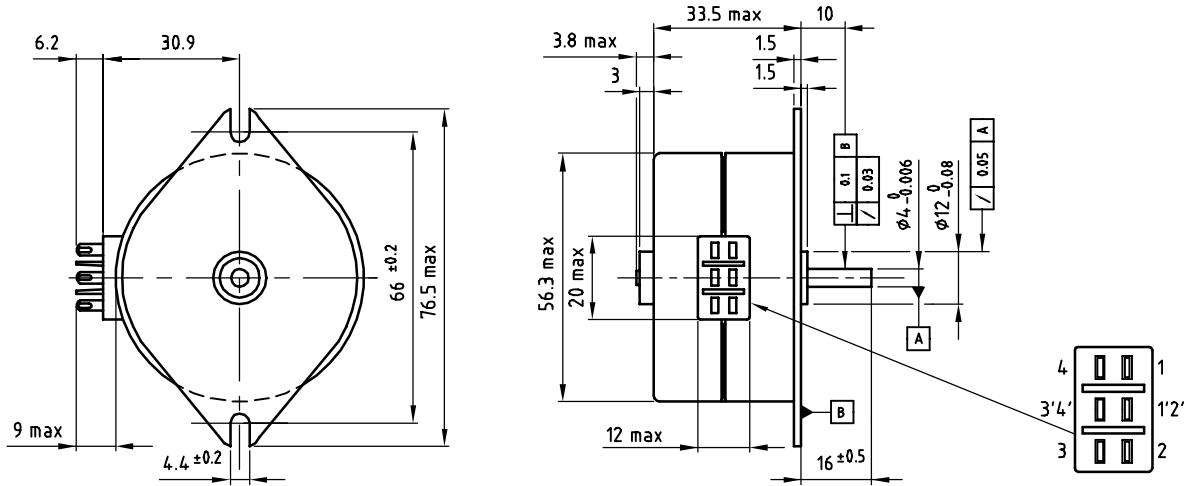
- x Gearbox S70A (Motor shaft must be $\phi 3 \times 8.2$)
- x Gearbox S70B (Motor shaft must be $\phi 3 \times 8.2$)

ST36 UNI

Stepper motor

37 mNm

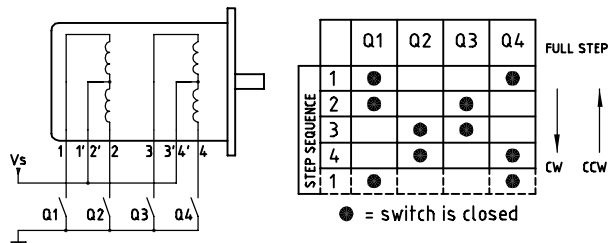
Dimensional drawing



Motor data

Motor order number	9904 112 +	36114	36014
Number of phases		4	4
Drive Electronics		Unipolar	Unipolar
Nominal Voltage	[V]	5	12
Number of steps per revolution		24	24
Step angle	[°]	15	15
Step angle tolerance	[°]	± 0.7	± 0.7
Max. working Torque	[mNm]	37	32
Holding Torque	[mNm]	60	60
Absorbed power	[W]	5.3	5.3
Resistance per phase	[Ω]	7.7	4.7
Inductance per phase	[mH]	27	170
Current per phase	[mA]	575	240
Thermal resistance winding-ambient	[K/W]	10	10
Rotor Moment of Inertia	[kgm ²]	4.5x10 ⁻⁶	4.5x10 ⁻⁶

Electrical Connection



General data

x	Type of bearings	sleeve	
x	Maximum radial load	10	N
x	Maximum axial load	1.5	N
x	Ambient temp. range operating	-20/+70	°C
x	Ambient temp. range storage	-40/+100	°C
x	Mass of motor	300	g

Product combinations

- x Gearbox S70A (Motor shaft must be $\phi 3 \times 8.2$)
- x Gearbox S70B (Motor shaft must be $\phi 3 \times 8.2$)