

# UAG3/4

## 3/4

Dimensions (mm)	∅ 20 x 17
Step angle (°)	18
Holding torque (mNm)	5.3 / 3.9 (standard magnet, stronger magnet on request)
Detent torque (mNm)	> 0.6 (standard magnet, stronger magnet on request)
Winding	bipolar/unipolar
Gear combination	on request



Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

## Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -20...+60
Ambient temperature storage	°C -40...+100
Thermal resistance at f=0 R <sub>therm</sub>	47 K/W
Thermal class	130 (B) according to DIN EN 60085 : 2008
Approval	standard
Mounting	any position
Electrical connection	lead wires AWG28, insulation ∅ 0.82 mm
Protection	IP40 according to DIN EN 60529 : 2014
Weight	22 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	sintered bronze, self-lubricating

## Order Reference

Type	Stepper Motor	UAG	3	3	N	05	R	E
Configuration	3 bipolar 4 unipolar							
Rotor shaft, mounting	3 centring 8 mm, mounting plate with long holes 5 centring 8 mm, mounting plate (for clipping) E centring 6 mm, mounting plate with long holes G centring 6 mm, mounting plate (for clipping)							
Approval	N Approval Standard							
Resistance	See next page Resistance per winding for bipolar or unipolar.							
Direction	reversible							
Cable	E cable 150 mm with Tyco connector CT 173977-4 1-6 (other on request)							



All specifications are representative only and maybe subject to variation. For confirmation of values, please contact Johnson Electric. Please also read "Saia Motors Important Notes" on catalog or at [www.johnsonelectric.com/SaiaMotorsNotes](http://www.johnsonelectric.com/SaiaMotorsNotes)

## Technical Data

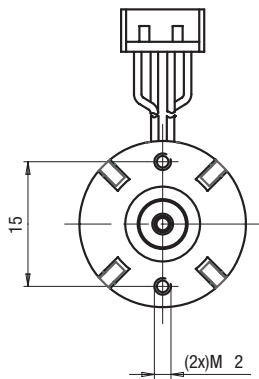
bipolar (UAG3)	Rated voltage UN	V	12	6
	Duty cycle	%	100	100
	Resistance R <sub>20</sub>	Ω	150	40
	Winding code		05	07
unipolar (UAG4)	Rated voltage UN	V	12	
	Duty cycle	%	100	
	Resistance R <sub>20</sub>	Ω	150	
	Winding code		06	
Steps per revolution		20		
Winding temperature T <sub>max</sub>		130° C		
Rotor inertia J <sub>R</sub>		0.26 gcm <sup>2</sup>		
Holding torque M <sub>H</sub>		0.53 cNm (UAG3) 0.39 cNm (UAG4) (standard magnet, stronger magnet on request)		
Detent torque M <sub>H</sub>		> 0.6 mNm		
Direction of rotation		reversible		

### Dimensions

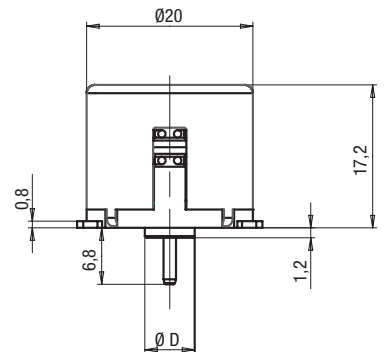
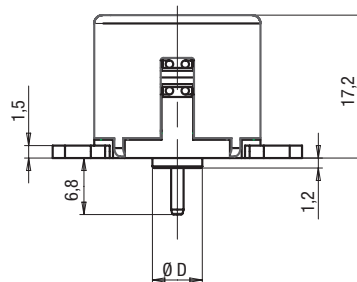
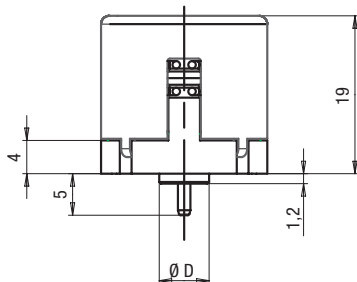
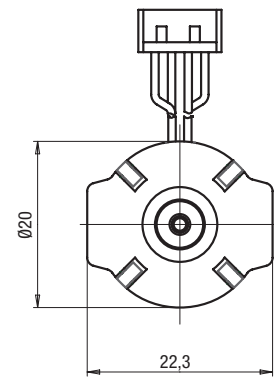
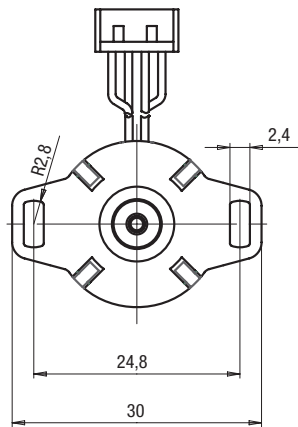
motor type	∅ D	
UAG30	∅ 8	0 -0.05
UAG3A	∅ 6	0 -0.05
UAG40	∅ 8	0 -0.05
UAG4A	∅ 6	0 -0.05

motor type	∅ D	
UAG33	∅ 8	0 -0.05
UAG3E	∅ 6	0 -0.05
UAG43	∅ 8	0 -0.05
UAG4E	∅ 6	0 -0.05

motor type	∅ D	
UAG35	∅ 8	0 -0.05
UAG3G	∅ 6	0 -0.05
UAG45	∅ 8	0 -0.05
UAG4G	∅ 6	0 -0.05

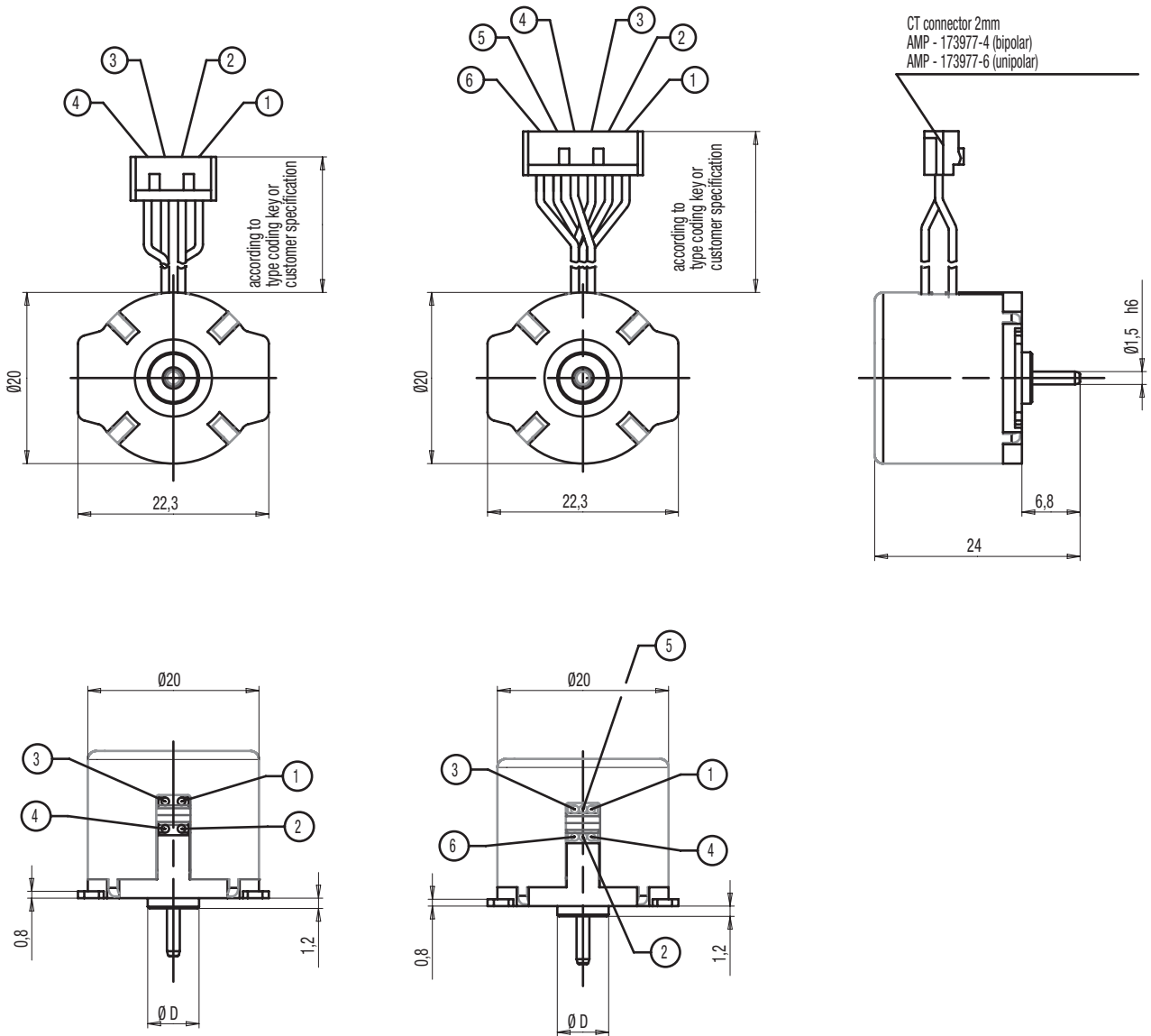


Use bolts with thread length 4mm max. Screw in torque 10cNm max.



# UAG3/4

## Dimensions



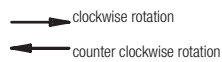
## Circuit diagram

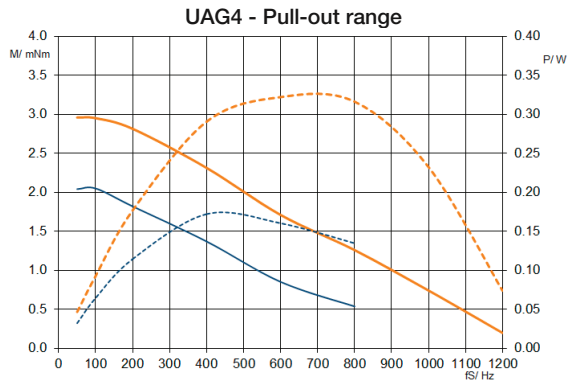
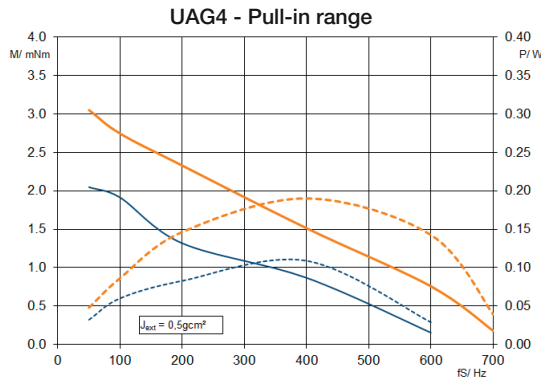
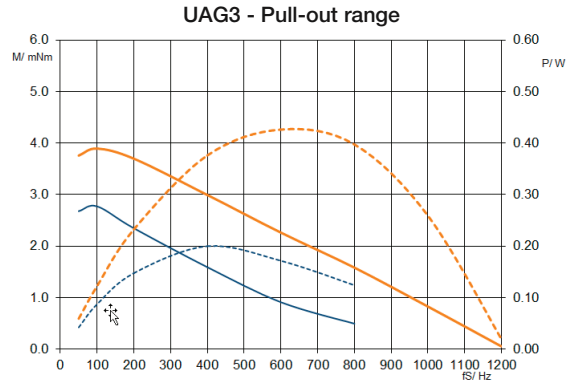
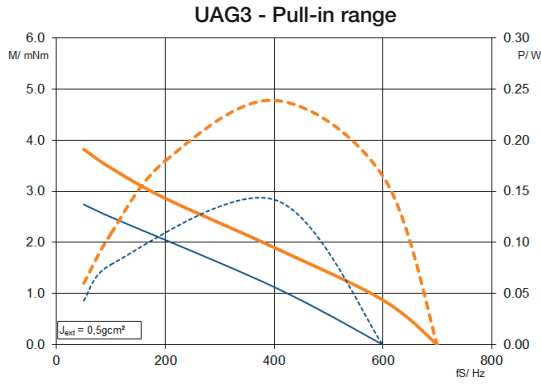
bipolar

		step				
		0	I	II	III	IV
wire	1	+	+	-	-	+
	2	+	-	-	+	+
	3	-	-	+	+	-
	4	-	+	+	-	-

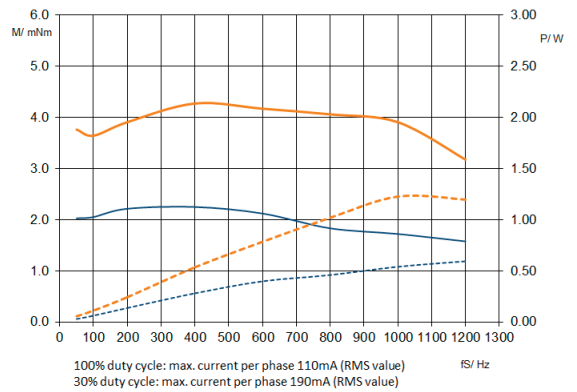
unipolar

		step				
		0	I	II	III	IV
wire	1	-	-			-
	2	-			-	-
	3	+	+	+	+	+
	4	+	+	+	+	+
	5			-	-	
	6		-	-		





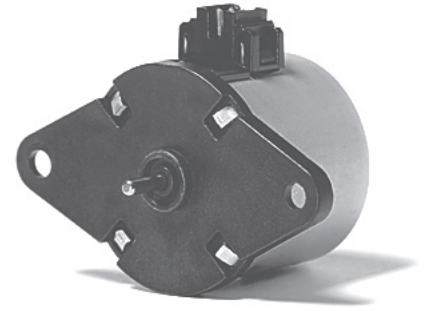
UAG3 - Pull-out range chopper (winding 40ohm, voltage 24Vdc)



— M - Duty cycle 30 %  
— M - Duty cycle 100%

- - - P - Duty cycle 30 %  
- - - P - Duty cycle 100 %

## UCD1/7; UCD2/8



Dimensions (mm)	∅ 28 x 24
Step angle (°)	7.5
Holding torque* (cNm)	1.4–2.3
Detent torque (cNm)	0.15–0.30
Winding	bipolar/unipolar
Gear combination	on request

\* values for connector version (connection B or D) / values of lead wire version (connection N) are up to 20 % lower  
 Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

### Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15 ... +60
Ambient temperature storage	°C -20 ... +100
Thermal resistance at f=0 R <sub>therm</sub>	29 K/W
Thermal class	130 (B) according to DIN EN 60085 : 2008
Approval	standard
Mounting	any position
Electrical connection	connector type D or N
Protection	IP30 according to DIN EN 60529 : 2014
Weight	54 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	Sintered bronze, self-lubricating

### Order Reference

Type	Stepper Motor	UCD	1	0	N	18	R	B
Configuration	1 bipolar, standard magnet 2 unipolar, standard magnet	7 bipolar, stronger magnet 8 unipolar, stronger magnet						
Rotor shaft, mounting	3 centring 8 mm, shaft 2.0 mm, screw plate 4 centring 8 mm, shaft 1.5 mm, screw plate 0 centring 8 mm, shaft 2.0 mm, clip 1 centring 8 mm, shaft 1.5 mm, clip	E centring 10 mm, shaft 2.0 mm, screw plate K centring 10 mm, shaft 1.5 mm, screw plate A centring 10 mm, shaft 2.0 mm, clip C centring 10 mm, shaft 1.5 mm, clip						
Approval	N Approval Standard							
Resistance	see next pages; Resistance per winding for bipolar or unipolar							
Direction	R reversible							
Connection	D see next pages "Connection Types" and page 145 "Connection Types" for B N							

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## Technical Data

bipolar	Configuration		UCD1	UCD7
	Holding torque $M_H^*$	cNm	1.6	2.3
	Detent torque $M_S$	cNm	0.15	0.3
	Rotor inertia $J_R$	gcm <sup>2</sup>	2.2	2.4
Steps per revolution			48	
Direction of rotation		V	reversible	

### Specific Technical Data Lead Wire Versions (Connection type N)

Rated voltage $U_N$	V	6	12	24
Duty cycle	%	100	100	100
Resistance $R_{20}$	$\Omega$	24	90	380
Winding code		18	03	04

### Specific Technical Data Connector Versions

Rated voltage $U_N$	V	6	12	24
Duty cycle	%	100	100	100
Resistance $R_{20}$	$\Omega$	24	90	380
Winding code		07	01	02

unipolar	Configuration		UCD2	UCD8
	Holding torque $M_H^*$	cNm	1.4	2.0
	Detent torque $M_S$	cNm	0.15	0.3
	Rotor inertia $J_R$	gcm <sup>2</sup>	2,1	2,4
Steps per revolution			48	
Direction of rotation		V	reversible	

### Specific Technical Data Lead Wire Versions

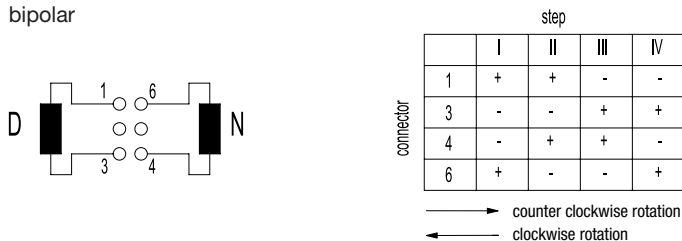
Rated voltage $U_N$	V	12	24	6
Duty cycle	%	100	100	100
Resistance $R_{20}$	$\Omega$	90	380	24
Winding code		10	11	12

### Specific Technical Data Connector Versions

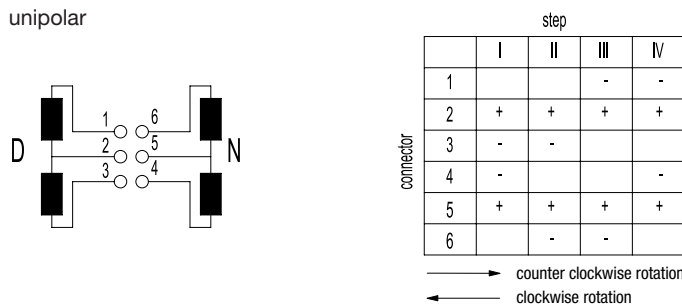
Rated voltage $U_N$	V	12	24
Duty cycle	%	100	100
Resistance $R_{20}$	$\Omega$	90	380
Winding code		01	02

\* values of connector version (connection B or D) / values of lead wire version are up to 20 % lower

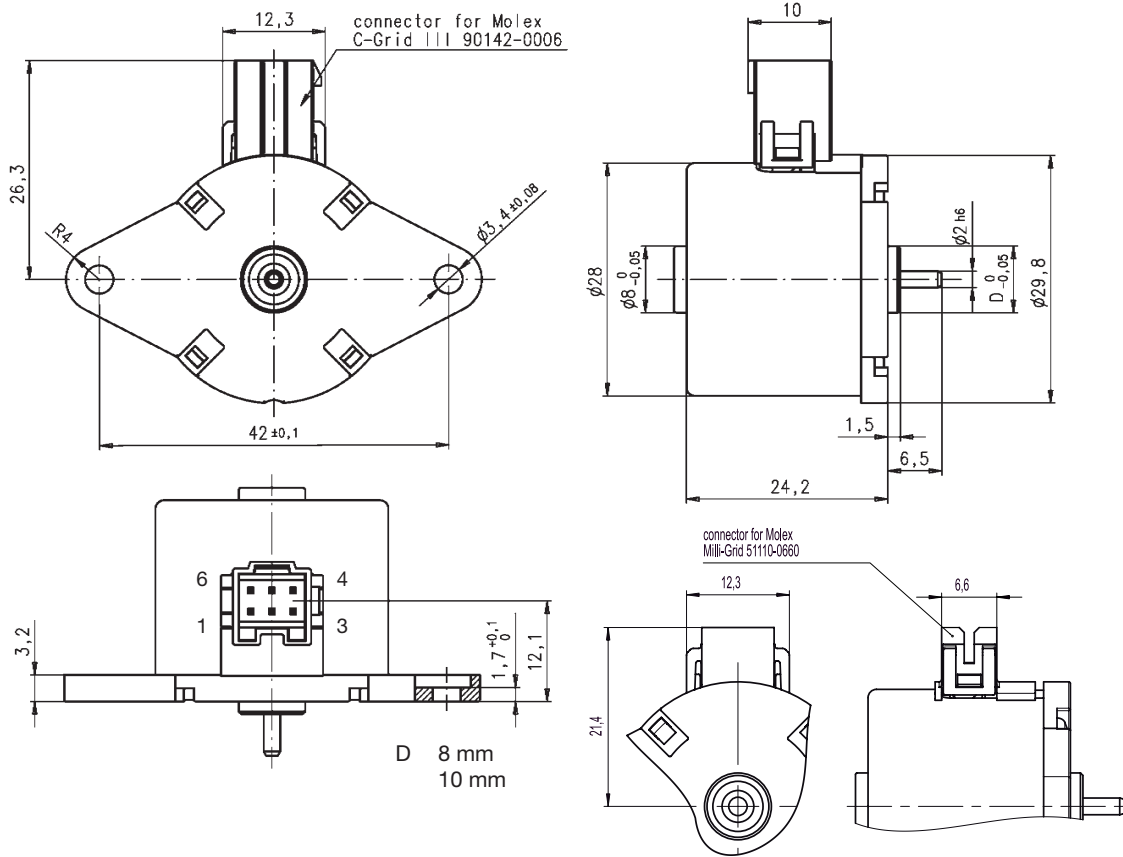
Circuit diagram bipolar



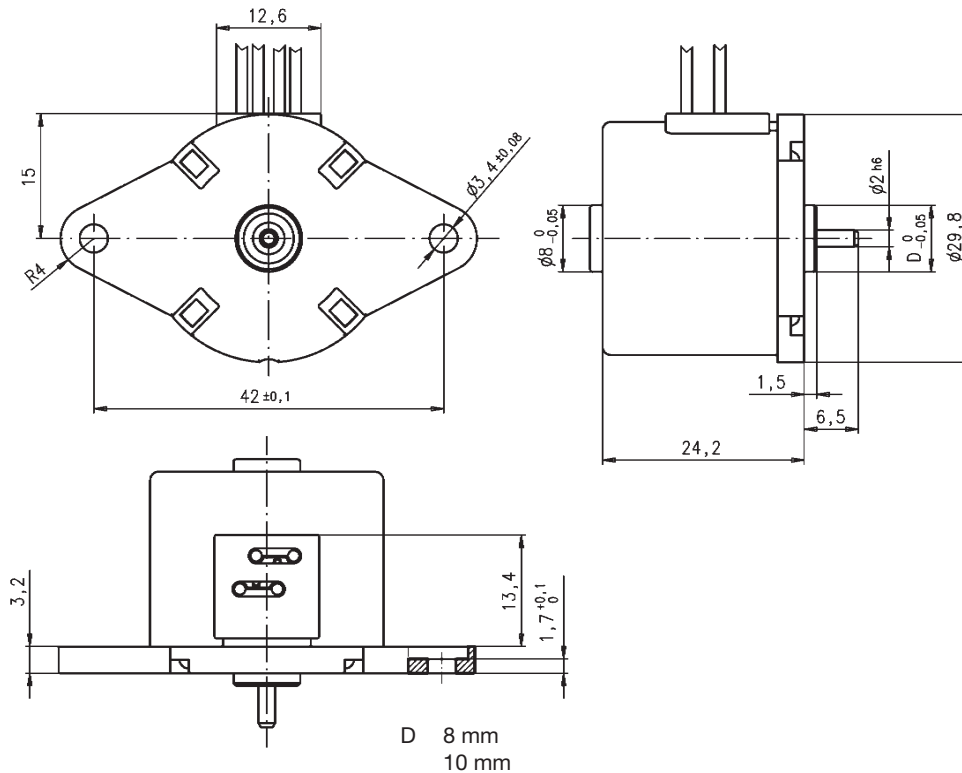
Circuit diagram unipolar



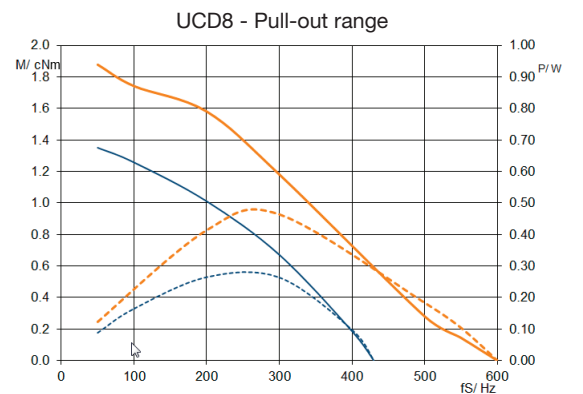
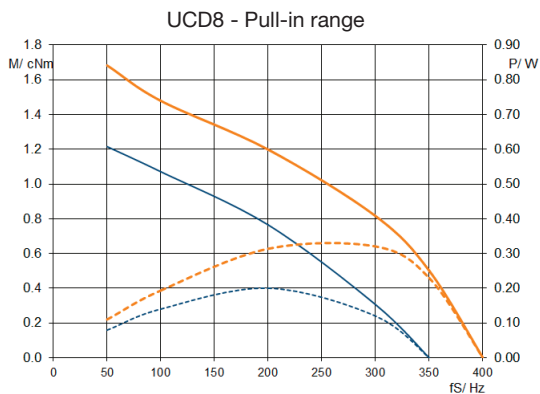
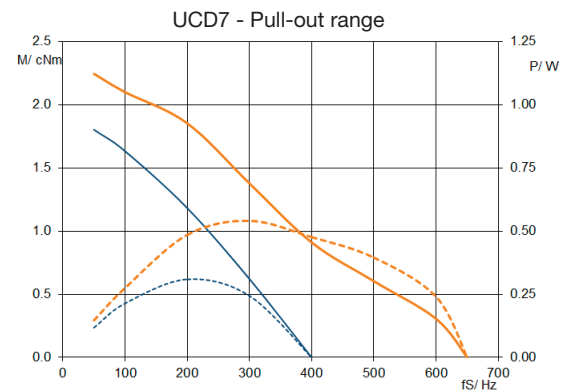
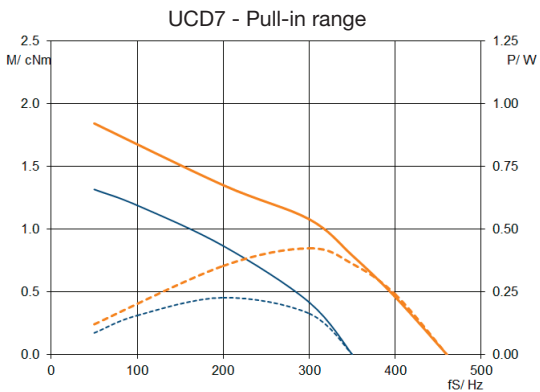
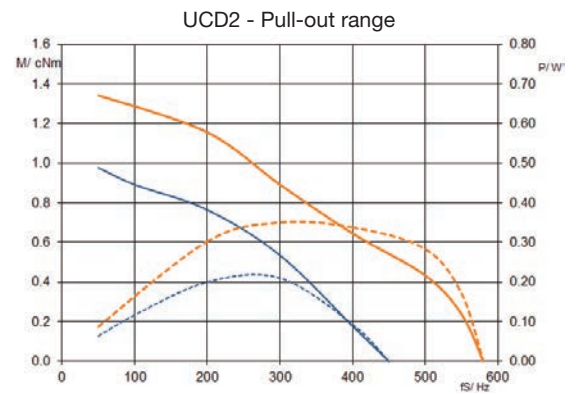
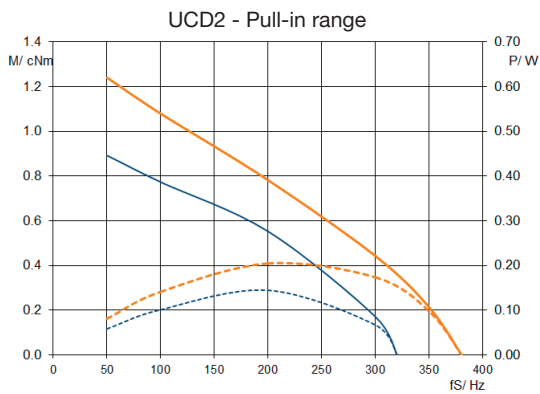
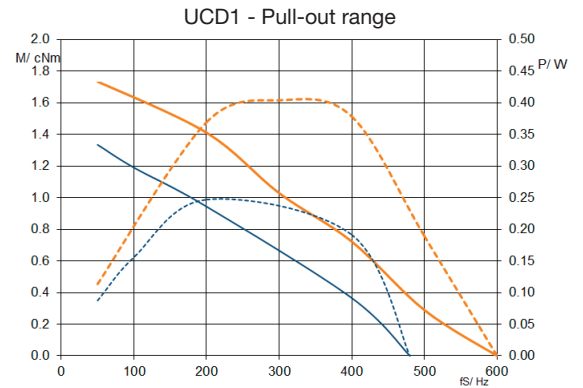
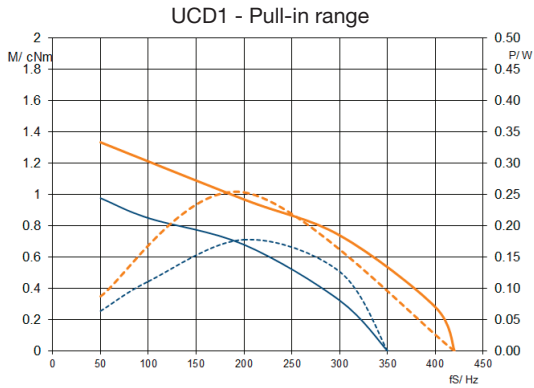
## Dimensions Version with Connector D



## Version with Connector N (Lead wire version)



## Performance Chart



— M - Duty cycle 30 %  
— M - Duty cycle 100%

- - - P - Duty cycle 30 %  
- - - P - Duty cycle 100 %



## UCB1/7; UCB2/8

Dimensions (mm) Ø 28 x 24

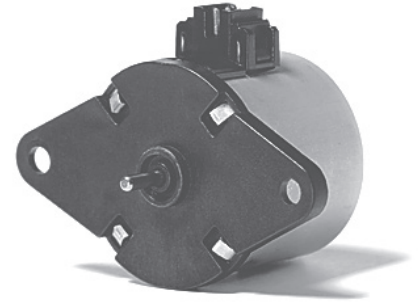
Step angle (°) 15

Holding torque\*  
(cNm) 1.1–2.4

Detent torque (cNm) 0.17/0.38

Winding bipolar/unipolar

Gear combination on request



\* values for connector version (connection B or D) / values of lead wire version (connection N) are up to 20 % lower.

Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

### Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15 ... +60
Ambient temperature storage	°C -20 ... +100
Thermal resistance at f=0 R <sub>therm</sub>	29 K/W
Thermal class	130 (B) according to DIN EN 60085 : 2008
Approval	standard
Mounting	any position
Electrical connection	connector type D or N
Protection	IP30 according to DIN EN 60529 : 2014
Weight	54 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	Sintered bronze, self-lubricating

### Order Reference

Type	Stepper Motor	UCB	1	0	N	18	R	B
Configuration	1	bipolar, standard magnet	7	bipolar, stronger magnet				
	2	unipolar, standard magnet	8	unipolar, stronger magnet				
Rotor shaft, mounting	3	centring 8 mm, shaft 2.0 mm, screw plate	E	centring 10 mm, shaft 2.0 mm, screw plate				
	4	centring 8 mm, shaft 1.5 mm, screw plate	K	centring 10 mm, shaft 1.5 mm, screw plate				
	0	centring 8 mm, shaft 2.0 mm, clip	A	centring 10 mm, shaft 2.0 mm, clip				
	1	centring 8 mm, shaft 1.5 mm, clip	C	centring 10 mm, shaft 1.5 mm, clip				
Approval	N	Approval Standard						
Resistance		see next pages; Resistance per winding for bipolar or unipolar						
Direction	R	reversible						
Connection	D	see next pages "Connection Types" and page 145 "Connection Types" for B						
	N							



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## Technical Data

bipolar	Configuration		UCB1	UCB7
	Holding torque $M_H^*$	cNm	1.5	2.4
	Detent torque $M_S$	cNm	0.17	0.38
	Rotor inertia $J_R$	gcm <sup>2</sup>	2.1	2.4
Steps per revolution			24	
Direction of rotation		V	reversible	

### Specific Technical Data Lead Wire Versions (Connection type N)

Rated voltage $U_N$	V	6	12	24
Duty cycle	%	100	100	100
Resistance $R_{20}$	$\Omega$	24	90	380
Winding code		18	03	04

### Specific Technical Data Connector Versions

Rated voltage $U_N$	V	6	12	24
Duty cycle	%	100	100	100
Resistance $R_{20}$	$\Omega$	24	90	380
Winding code		07	01	02

unipolar	Configuration		UCB2	UCB8
	Holding torque $M_H^*$	cNm	1.1	1.8
	Detent torque $M_S$	cNm	0.17	0.38
	Rotor inertia $J_R$	gcm <sup>2</sup>	2.1	2.4
Steps per revolution			24	
Direction of rotation		V	reversible	

### Specific Technical Data Lead Wire Versions

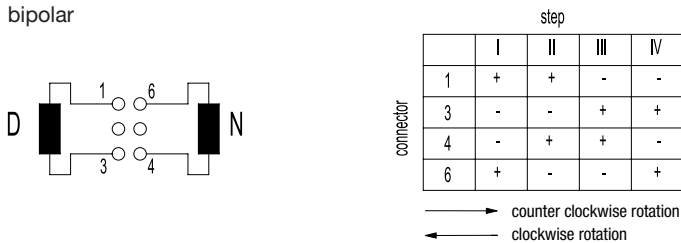
Rated voltage $U_N$	V	12	24	6
Duty cycle	%	100	100	100
Resistance $R_{20}$	$\Omega$	90	380	24
Winding code		10	11	12

### Specific Technical Data Connector Versions

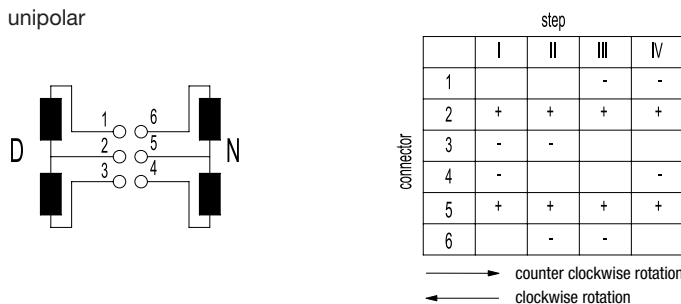
Rated voltage $U_N$	V	12	24
Duty cycle	%	100	100
Resistance $R_{20}$	$\Omega$	90	380
Winding code		01	02

\* values of connector version (connection B or D) / values of lead wire version are up to 20 % lower

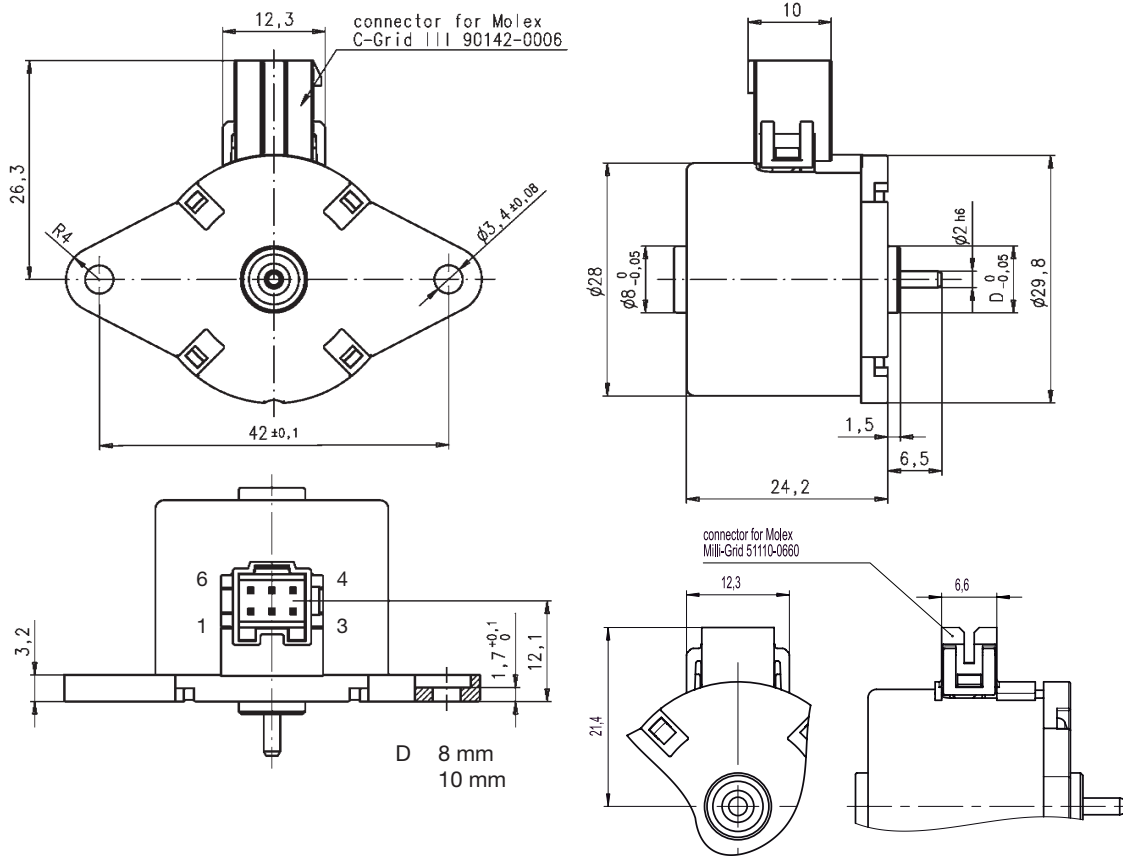
Circuit diagram bipolar



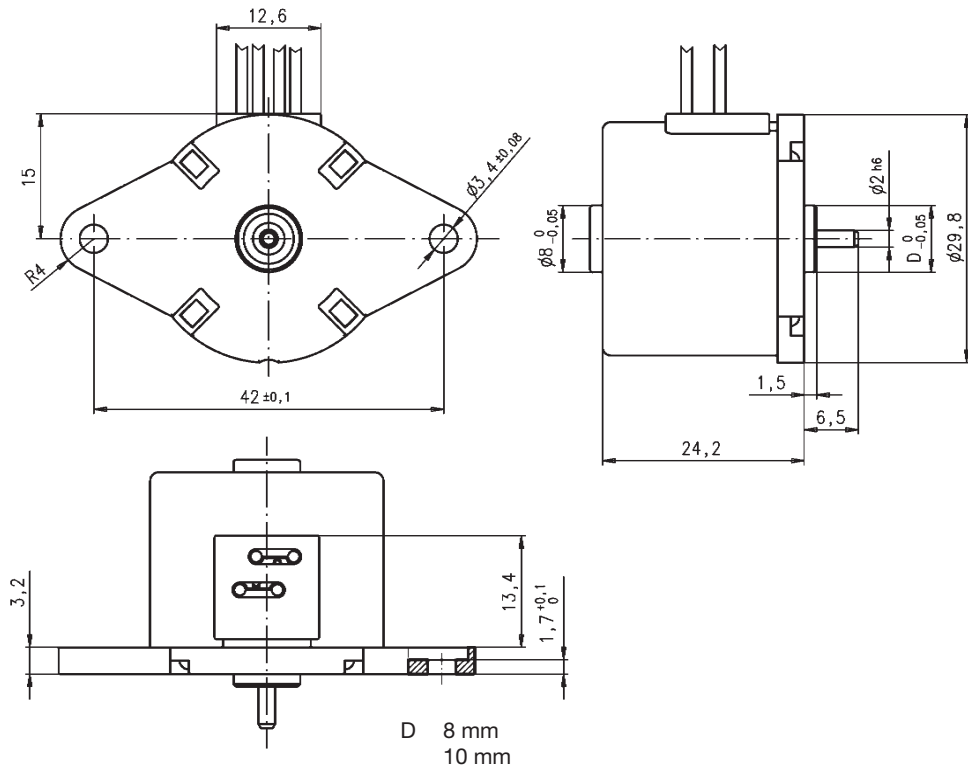
unipolar



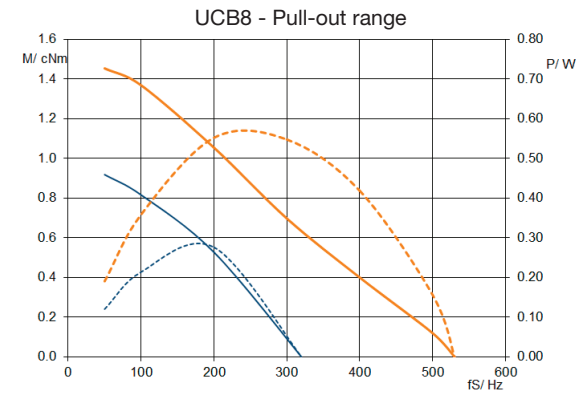
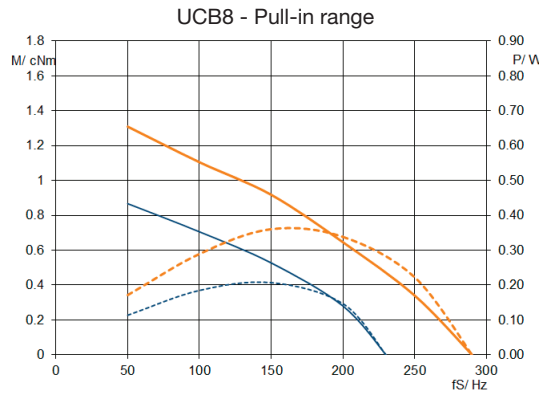
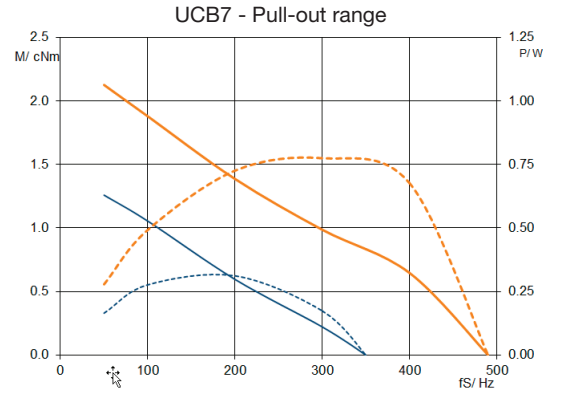
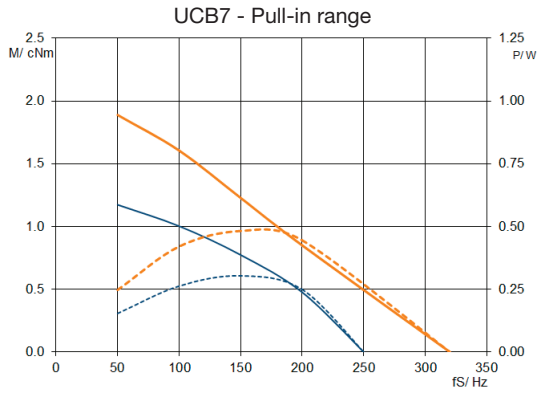
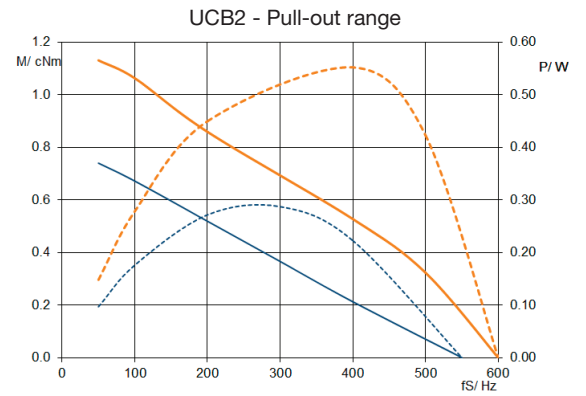
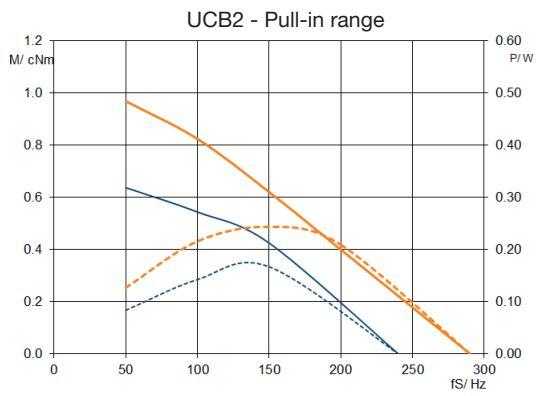
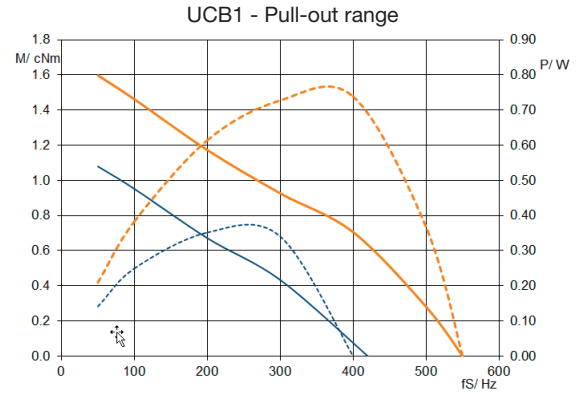
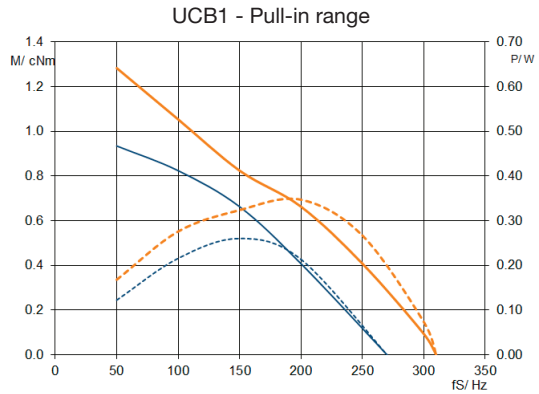
Dimensions Version with Connector D



Version with Connector N (Lead wire version)



## Performance Chart



— M - Duty cycle 30 %  
— M - Duty cycle 100%

- - - P - Duty cycle 30 %  
- - - P - Duty cycle 100 %

## UBD1/2/5/6

Dimensions (mm) Ø 36 x 21

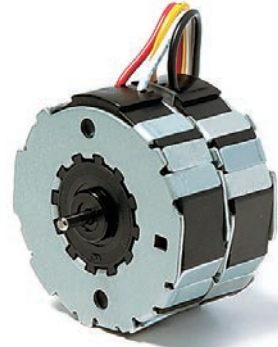
Step angle (°) 7.5

Holding torque (cNm) 1.1–1.6

Detent torque (cNm) 0.19/0.23

Winding bipolar/unipolar

Gear combination D, M, B, F, V



Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

### Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15...+55
Ambient temperature storage	°C -20...+100
Thermal resistance at f=0 R <sub>therm</sub>	27 K/W
Thermal class	105 (A) according to DIN EN 60085 : 2008
Approval	standard (UL/CSA on request)
Mounting	any position
Electrical connection	cable
Protection	IP40 according to DIN EN 60529 : 2014
Weight	60 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	sintered bronze, self-lubricating
Electric strength	according to DIN EN 60034-1/DIN EN 60335-1

### Order Reference

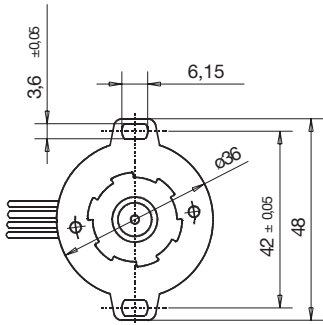
Type	Stepper Motor		UBD	1	0	N	03	R	E
Configuration	1	bipolar, standard magnet	5	bipolar, stronger magnet					
	2	unipolar, standard magnet	6	unipolar, stronger magnet					
Rotor shaft, mounting	0	centring 8 mm, shaft 2.0 mm, clip	A	centring 10 mm, shaft 2.0 mm, clip					
	1	centring 8 mm, shaft 1.5 mm, clip	C	centring 10 mm, shaft 1.5 mm, clip					
	3	centring 8 mm, shaft 2.0 mm, screw plate	E	centring 10 mm, shaft 2.0 mm, screw plate					
	4	centring 8 mm, shaft 1.5 mm, screw plate	K	centring 10 mm, shaft 1.5 mm, screw plate					
Approval	N	Approval Standard							
Resistance	See next page Resistance per winding for bipolar or unipolar.								
Direction	reversible								
Cable	E	cable 150 mm (other on request)							

## Technical Data

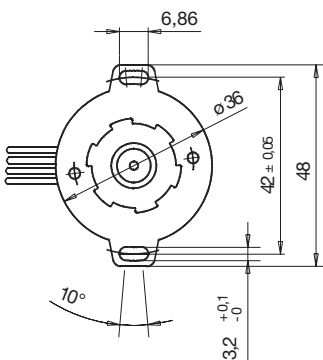
bipolar			UBD1	UBD5				
Holding torque $M_H$	cNm		1.5	1.6				
Detent torque $M_S$	cNm		0.19	0.23				
Rotor inertia $J_R$	gcm <sup>2</sup>		2.8	2.9				
UBD1/5	Rated voltage $U_N$	V	6	12	24	6	12	24
	Duty cycle	%	100	100	100	100	100	100
	Resistance $R_{20}$	$\Omega$	18.5	100	460	27.5	133	535
	Winding code		03	05	06	01	04	07
unipolar			UBD2	UBD6				
Holding torque $M_H$	cNm		1.1	1.35				
Detent torque $M_S$	cNm		0.19	0.23				
Rotor inertia $J_R$	gcm <sup>2</sup>		2.8	2.9				
UBD2/6	Rated voltage $U_N$	V	6	12	24	6	12	24
	Duty cycle	%	100	100	100	100	100	100
	Resistance $R_{20}$	$\Omega$	28	120	500	41	172	700
	Winding code		07	08	09	01	02	03
UBD3/7	Rated voltage $U_N$	V	6	12	24			
	Duty cycle	%	100	100	100			
	Resistance $R_{20}$	$\Omega$	18.5	100	460			
	Winding code		03	05	06			
UBD4/8	Rated voltage $U_N$	V	6	12	24			
	Duty cycle	%	100	100	100			
	Resistance $R_{20}$	$\Omega$	28	120	500			
	Winding code		07	08	09			
	Steps per revolution		48					
	Winding temperature $T_{max}$	$^{\circ}C$	105					
	Direction of rotation		reversible					

### Dimensions

#### Mounting with screw plate

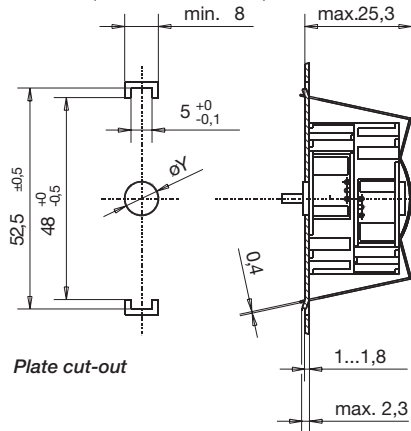


#### Mounting with screw plate



#### Mounting with snap-on clip

(item no. 4199 48230)



$\varnothing D$  Rotor shaft

$\varnothing 2$  h6

$\varnothing 1.5$  js8

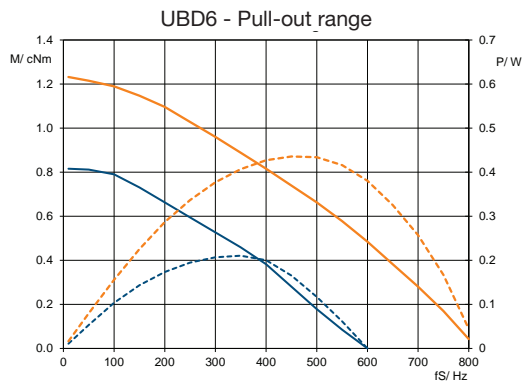
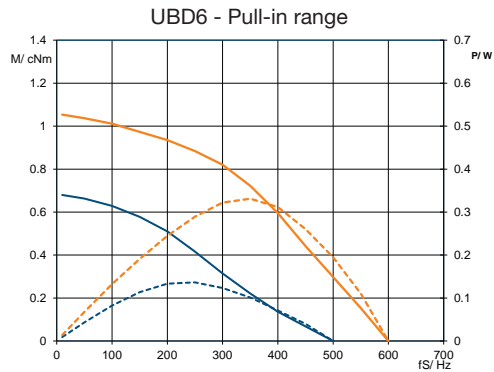
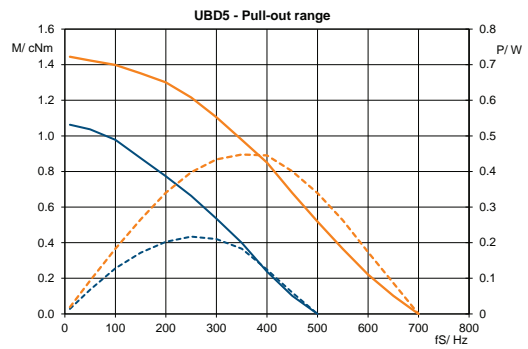
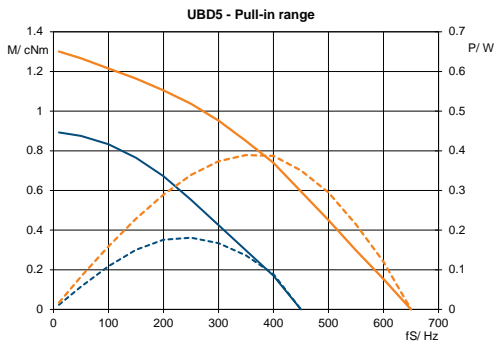
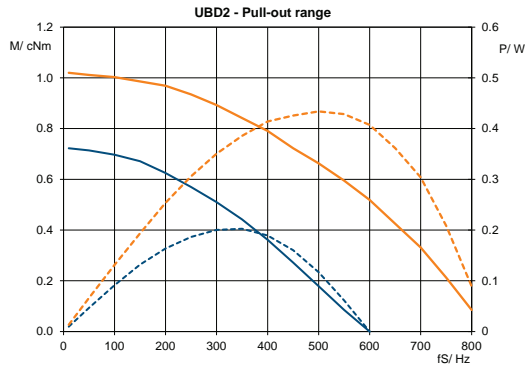
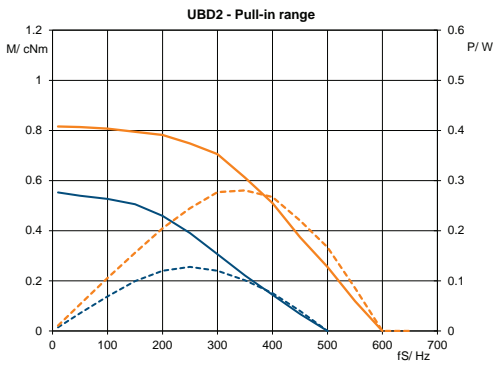
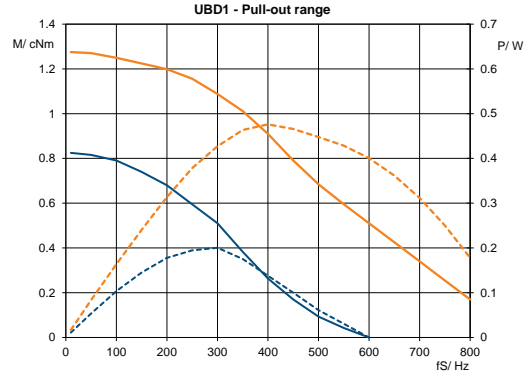
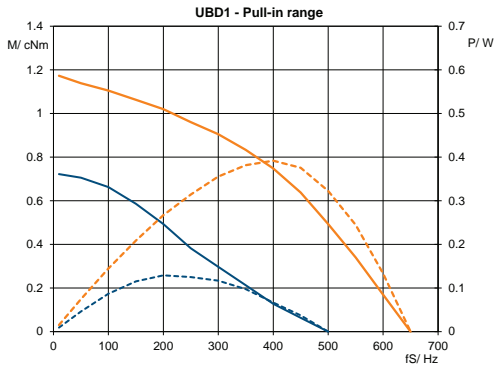
$\varnothing Z$   $\varnothing Y$

8 8F8

10 10F8

Screw clip: 4199 48450

## Performance Chart

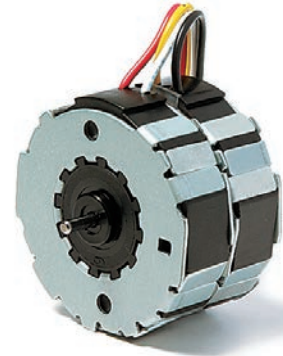


— M - Duty cycle 30 %  
— M - Duty cycle 100 %

- - - P - Duty cycle 30 %  
- - - P - Duty cycle 100 %

## UBB1/2/5/6

Dimensions (mm)	∅ 36 x 21
Step angle (°)	15
Holding torque (cNm)	0.85–1.6
Detent torque (cNm)	0.21/0.31
Winding	bipolar/unipolar
Gear combination	D, M, B, F, V



Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

### Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15...+55
Ambient temperature storage	°C -20...+100
Thermal resistance at f=0 R <sub>therm</sub>	27 K/W
Thermal class	105 (A) according to DIN EN 60085 : 2008
Approval	standard (UL/CSA on request)
Mounting	any position
Electrical connection	cable
Protection	IP40 according to DIN EN 60529 : 2014
Weight	60 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	sintered bronze, self-lubricating
Electric strength	according to DIN EN 60034-1/DIN EN 60335-1

### Order Reference

Type	Stepper Motor		UBB	1	0	N	03	R	E
Configuration	1 bipolar, standard magnet	5 bipolar, stronger magnet							
	2 unipolar, standard magnet	6 unipolar, stronger magnet							
Rotor shaft, mounting	0 centring 8 mm, shaft 2.0 mm, clip	A centring 10 mm, shaft 2.0 mm, clip							
	1 centring 8 mm, shaft 1.5 mm, clip	C centring 10 mm, shaft 1.5 mm, clip							
	3 centring 8 mm, shaft 2.0 mm, screw plate	E centring 10 mm, shaft 2.0 mm, screw plate							
	4 centring 8 mm, shaft 1.5 mm, screw plate	K centring 10 mm, shaft 1.5 mm, screw plate							
Approval	N Approval Standard								
Resistance	See next page Resistance per winding for bipolar or unipolar.								
Direction	reversible								
Cable	E cable 150 mm (other on request)								

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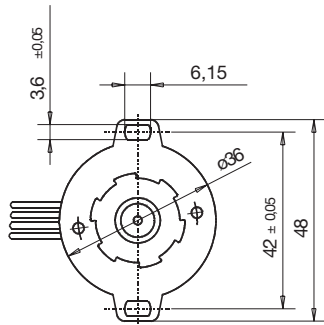




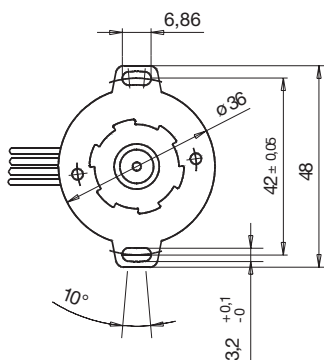
## Technical Data

			UBB1	UBB5	
bipolar					
	Holding torque $M_H$	cNm	1.3	1.6	
	Detent torque $M_S$	cNm	0.21	0.31	
	Rotor inertia $J_R$	gcm <sup>2</sup>	2.8	2.9	
UBB1/5					
	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	18.5	100	460
	Winding code		03	05	06
unipolar					
	Holding torque $M_H$	cNm	0.85	1.2	
	Detent torque $M_S$	cNm	0.21	0.31	
	Rotor inertia $J_R$	gcm <sup>2</sup>	2.8	2.9	
UBB2/6					
	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	28	120	500
	Winding code		07	08	09
UBB3/7					
	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	18.5	100	460
	Winding code		03	05	06
UBB4/8					
	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	28	120	500
	Winding code		07	08	09
Steps per revolution			24		
Winding temperature $T_{max}$		$^{\circ}C$	105		
Direction of rotation			reversible		

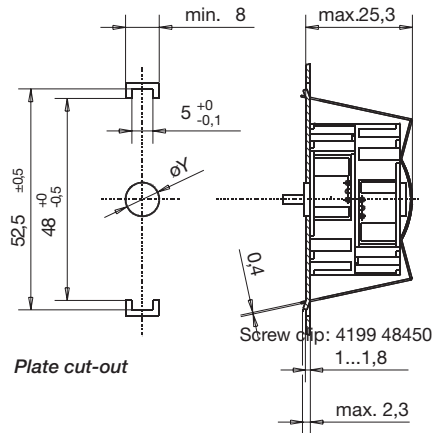
### Dimensions Mounting with screw plate



### Mounting with screw plate



### Mounting with snap-on clip (item no. 4199 48230)



### øD Rotor shaft

ø 2 h6

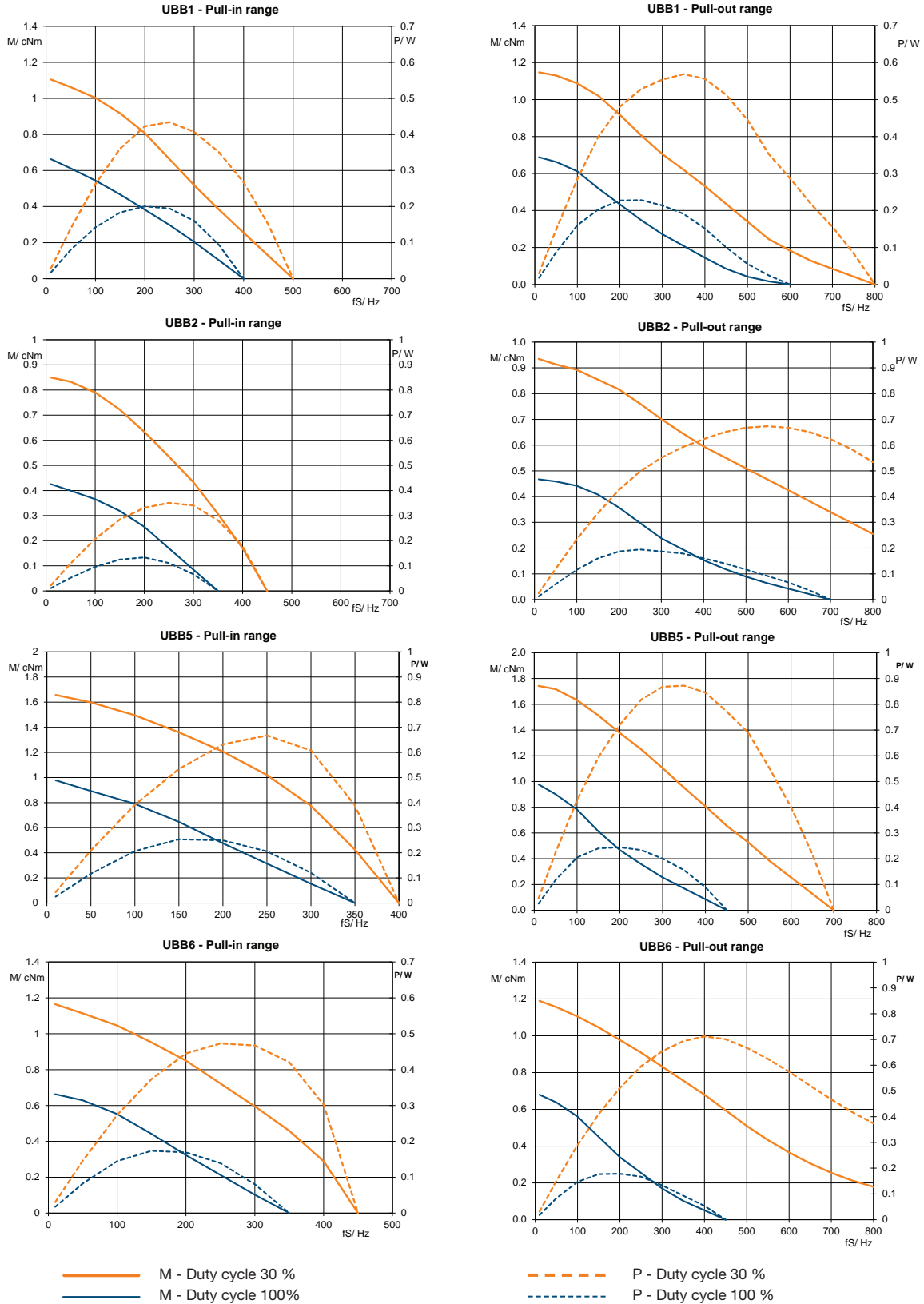
ø 1.5 js8

øZ øY

8 8F8

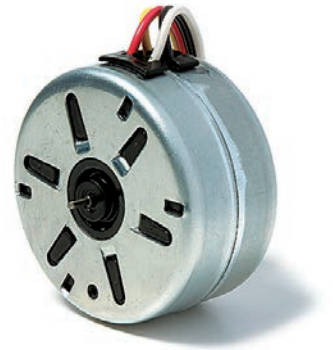
10 10F8

## Performance Chart



## UDB1/2

Dimensions (mm)	∅ 48 x 24
Step angle (°)	15
Holding torque (cNm)	2.3/1.8
Detent torque (cNm)	0.3
Winding	bipolar/unipolar
Gear combination	D, M, B, F, V, J



Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

### Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15...+60
Ambient temperature storage	°C -20...+100
Thermal resistance at f=0 R <sub>therm</sub>	18 K/W
Thermal class	105 (A) according to DIN EN 60085 : 2008
Approval	standard
Mounting	any position
Electrical connection	cable
Protection	UDB1: IP30, UDB2: IP40 according to DIN EN 60529 : 2014
Weight	132 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	sintered bronze, self-lubricating
Electric strength	according to DIN EN 60034-1/DIN EN 60335-1

### Order Reference

Type	Stepper Motor	UDB	1	0	N	02	R	N
Configuration	1 bipolar 2 unipolar							
Rotor shaft, mounting	0 centring 8 mm, shaft 1.5 mm, clip 1 centring 8 mm, shaft 2.0 mm, clip							
Approval	N Approval Standard							
Resistance	See next page Resistance per winding for bipolar or unipolar.							
Direction	reversible							
Cable	N cable 150 mm (other on request)							

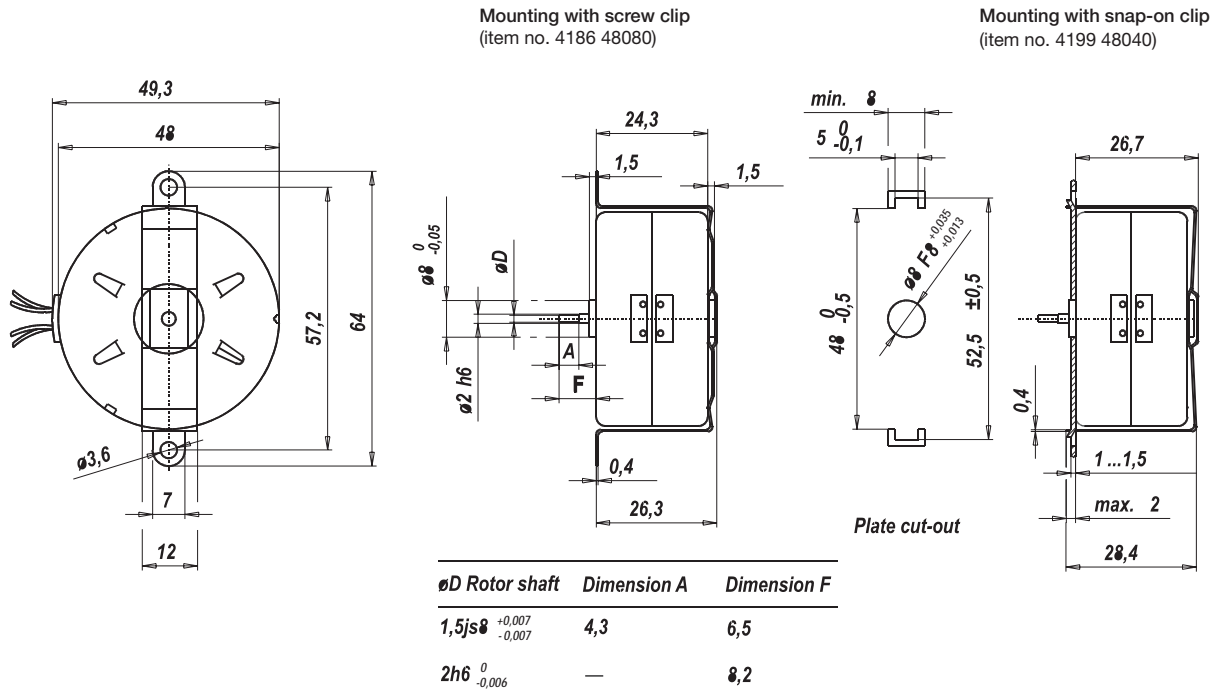


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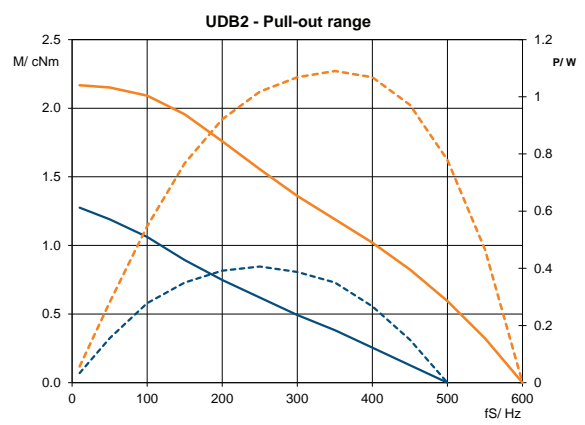
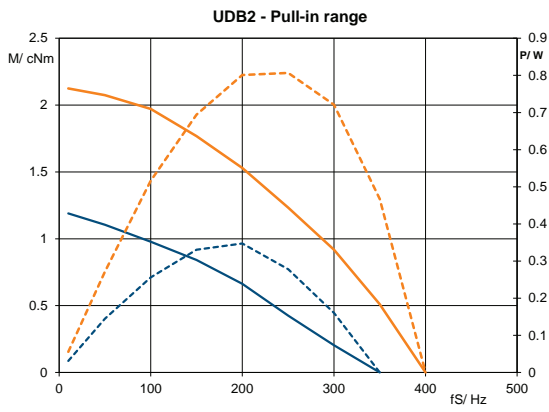
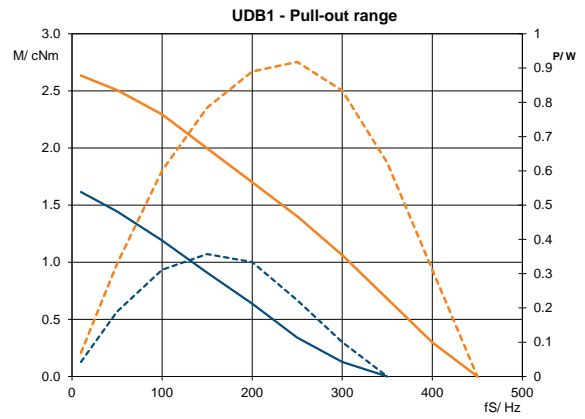
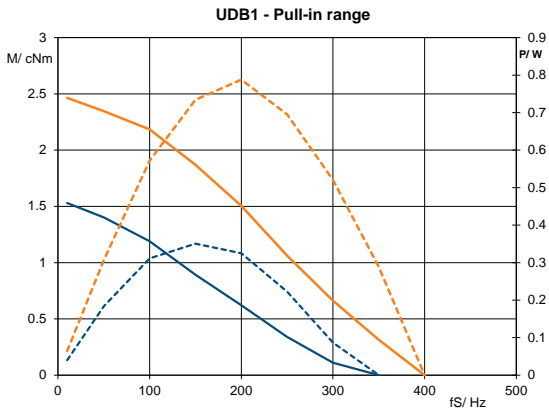
## Technical Data

bipolar (UDB1)	Holding torque $M_H$	cNm	2.3		
	Detent torque $M_S$	cNm	0.3		
	Rotor inertia $J_R$	gcm <sup>2</sup>	6.3		
	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	15	78	350
	Winding code		01	02	03
unipolar (UDB2)	Holding torque $M_H$	cNm	1.8		
	Detent torque $M_S$	cNm	0.3		
	Rotor inertia $J_R$	gcm <sup>2</sup>	6.3		
	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	19	75	300
	Winding code		01	02	04
Steps per revolution		24			
Winding temperature $T_{max}$	$^{\circ}C$	105			
Direction of rotation		reversible			

Dimensions



## Performance Chart

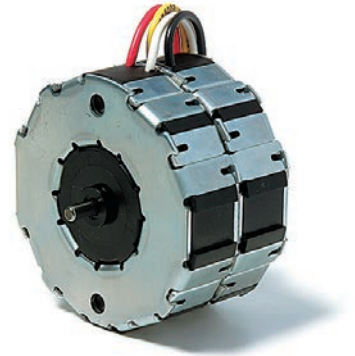


— M - Duty cycle 30 %  
— M - Duty cycle 100%

- - - P - Duty cycle 30 %  
- - - P - Duty cycle 100 %

## UFD1/2

Dimensions (mm)	∅ 52 x 28
Step angle (°)	7.5
Holding torque (cNm)	5.4/3.9
Detent torque (cNm)	0.38
Winding	bipolar/unipolar
Gear combination	D, M, B, F, V, J, O, P



Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

## Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15...+55
Ambient temperature storage	°C -20...+100
Thermal resistance at f=0 R <sub>therm</sub>	13 K/W
Thermal class	105 (A) according to DIN EN 60085 : 2008 (130 / B on request)
Approval	standard (UL/CSA on request)
Mounting	any position
Electrical connection	lead wires AWG22, insulation ∅ 1.72 ± 0.08 mm
Protection	IP40 according to DIN EN 60529 : 2014
Weight	180 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	sintered bronze, self-lubricating
Electric strength	according to DIN EN 60034-1/DIN EN 60335-1

## Order Reference

Type	Stepper Motor						UFD	1	0	N	02	R	N
Configuration	1	bipolar, two coils											
	2	unipolar, two coils											
Rotor shaft, mounting	0	centring 8 mm, shaft 3.0 mm, clip	E	centring 10 mm, shaft 3.0 mm, screw plate									
	1	centring 8 mm, shaft 2.0 mm, clip	K	centring 10 mm, shaft 2.0 mm, screw plate									
	2	centring 8 mm, shaft 1.5 mm, clip	M	centring 10 mm, shaft 1.5 mm, screw plate									
	3	centring 8 mm, shaft 3.0 mm, screw plate	B	centring 10 mm, shaft 3.0 mm, clip									
	4	centring 8 mm, shaft 2.0 mm, screw plate	A	centring 10 mm, shaft 2.0 mm, clip									
	5	centring 8 mm, shaft 1.5 mm, screw plate	C	centring 10 mm, shaft 1.5 mm, clip									
Approval	N	Approval Standard											
Resistance	See next page Resistance per winding for bipolar or unipolar.												
Direction	reversible												
Cable	E cable 150 mm (other on request)												

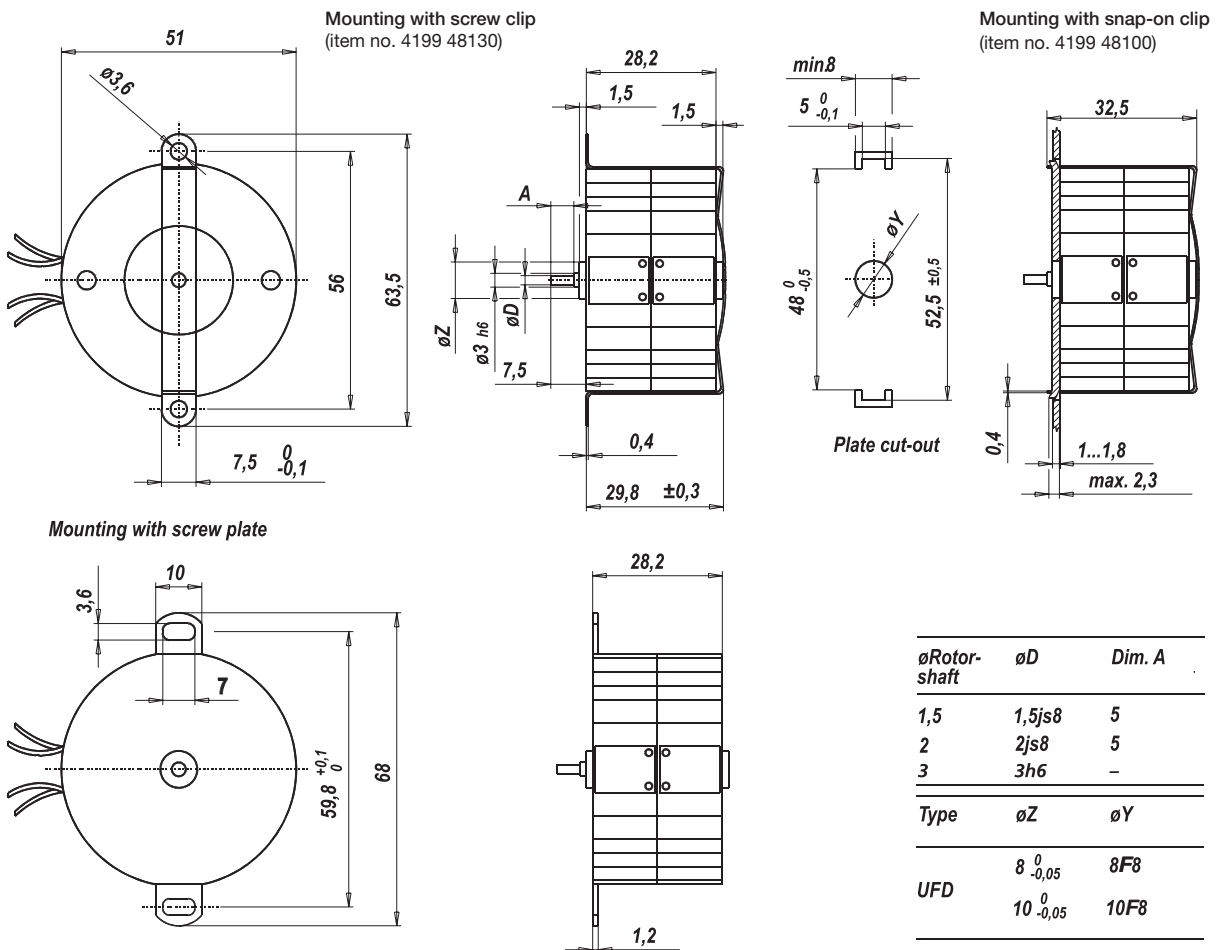
All specifications are representative only and maybe subject to variation. For confirmation of values, please contact Johnson Electric. Please also read "Saia Motors Important Notes" on catalog or at [www.johnsonelectric.com/SaiaMotorsNotes](http://www.johnsonelectric.com/SaiaMotorsNotes)



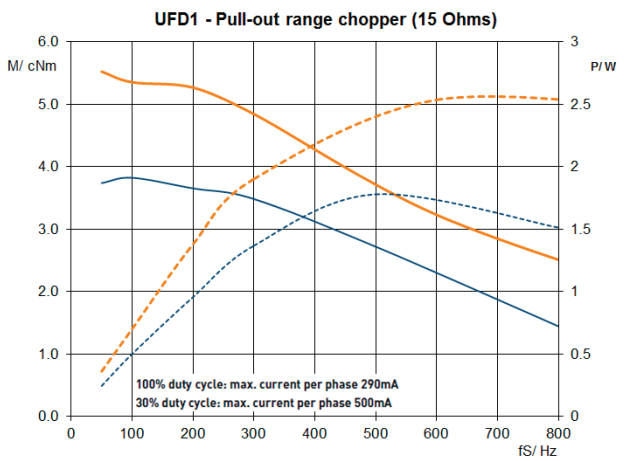
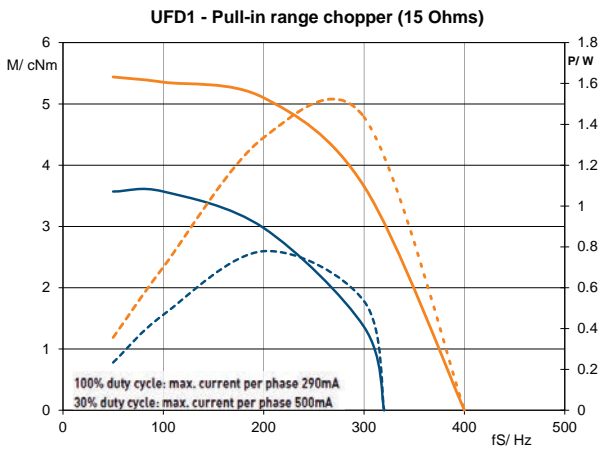
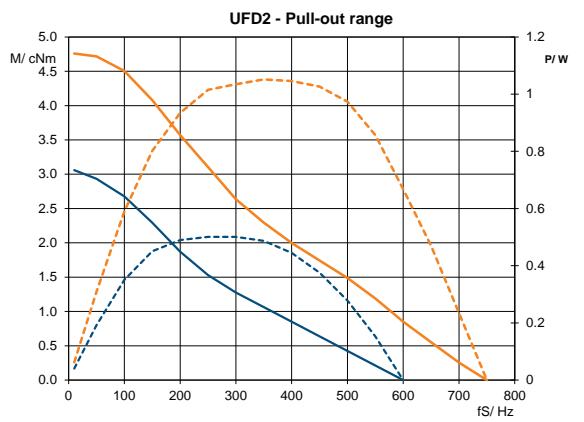
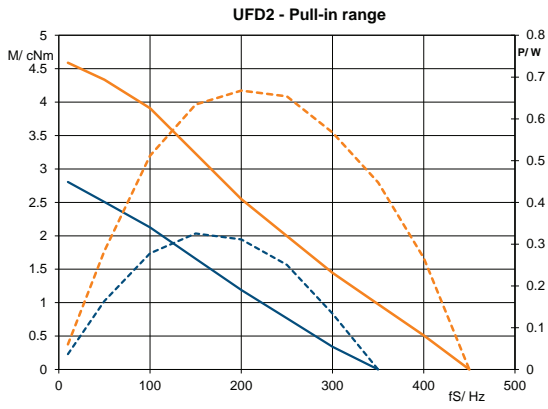
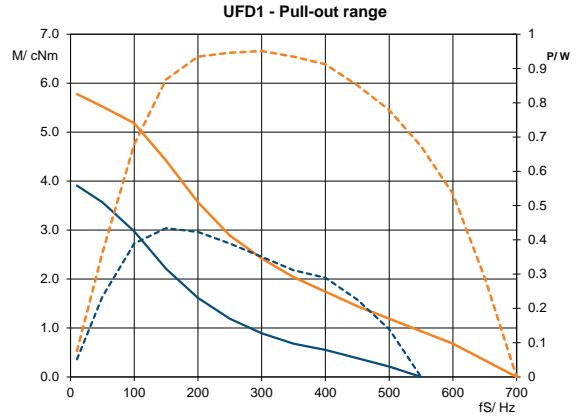
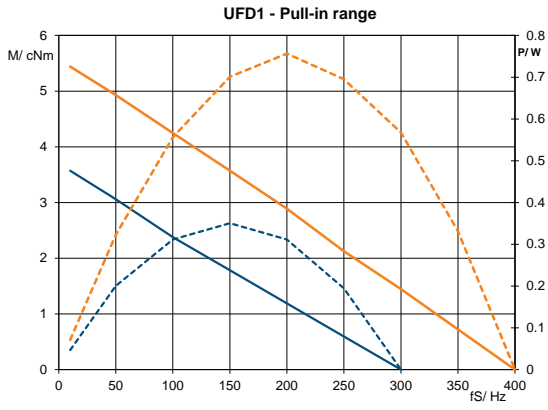
## Technical Data

bipolar (UFD1)	Holding torque $M_H$	cNm	5.4		
	Detent torque $M_S$	cNm	0.38		
	Rotor inertia $J_R$	gcm <sup>2</sup>	14.4		
	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	9.5	52	250
	Winding code		01	02	03
unipolar (UFD2)	Holding torque $M_H$	cNm	3.9		
	Detent torque $M_S$	cNm	0.38		
	Rotor inertia $J_R$	gcm <sup>2</sup>	14.4		
	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	15	61	251
	Winding code		01	02	03
	Steps per revolution		48		
	Winding temperature $T_{max}$	$^{\circ}C$	105		
	Direction of rotation		reversible		
Rotor shaft		3, $\varnothing D = 3h6$ , Dim. A = „-“			

### Dimensions



## Performance Chart



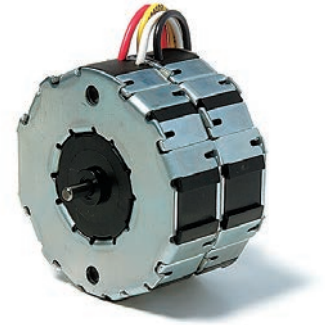
— M - Duty cycle 30 %  
— M - Duty cycle 100%

- - - P - Duty cycle 30 %  
- - - P - Duty cycle 100 %



## UFB1/2/5; UFB3/4

Dimensions (mm)	∅ 52 x 28 / ∅ 52 x 56
Step angle (°)	15
Holding torque (cNm)	3.7–4.7 (UFB1/2); 7.0 (UFB5); 6.5–8.8 (UFB3/4)
Detent torque (cNm)	0.4 (UFB1/2); 0.68 (UFB5); 0.68 (UFB3/4)
Winding	bipolar/unipolar
Gear combination	D, M, B, F, V, J, O, P



Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

### Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15...+55
Ambient temperature storage	°C -20...+100
Thermal resistance at f=0 R <sub>therm</sub>	11 K/W (UFB1/2/5), 7 K/W (UFB3/4)
Thermal class	105 (A) according to DIN EN 60085 : 2008 [130 (B) on request]
Approval	standard (UL/CSA on request)
Mounting	any position
Electrical connection	lead wires AWG22, insulation ∅ 1.75 ± 0.08 mm
Protection	IP40 according to DIN EN 60529 : 2014
Weight	180 g (UFB1/2/5), 350 g (UFB3/4)
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	sintered bronze, self-lubricating
Electric strength	according to DIN EN 60034-1/DIN EN 60335-1

### Order Reference

Type	Stepper Motor		UFB		1	0	N	01	R	N
Configuration	1	bipolar, two coils, standard magnet	3	bipolar, four coils, standard magnet						
	2	unipolar, two coils, standard magnet	4	unipolar, four coils, standard magnet						
	5	bipolar, two coils, stronger magnet								
Rotor shaft, mounting	0	centring 8 mm, shaft 3.0 mm, clip	E	centring 10 mm, shaft 3.0 mm, screw plate *						
	1	centring 8 mm, shaft 2.0 mm, clip	K	centring 10 mm, shaft 2.0 mm, screw plate *						
	2	centring 8 mm, shaft 1.5 mm, clip	M	centring 10 mm, shaft 1.5 mm, screw plate *						
	3	centring 8 mm, shaft 3.0 mm, screw plate *	B	centring 10 mm, shaft 3.0 mm, clip						
	4	centring 8 mm, shaft 2.0 mm, screw plate *	A	centring 10 mm, shaft 2.0 mm, clip						
	5	centring 8 mm, shaft 1.5 mm, screw plate *	C	centring 10 mm, shaft 1.5 mm, clip						
Approval	N	Approval Standard								
Winding code	see next page									
Direction	reversible									
Cable	N	cable 150 mm (other on request)								

\* screw plate not for UFB3 and UFB4



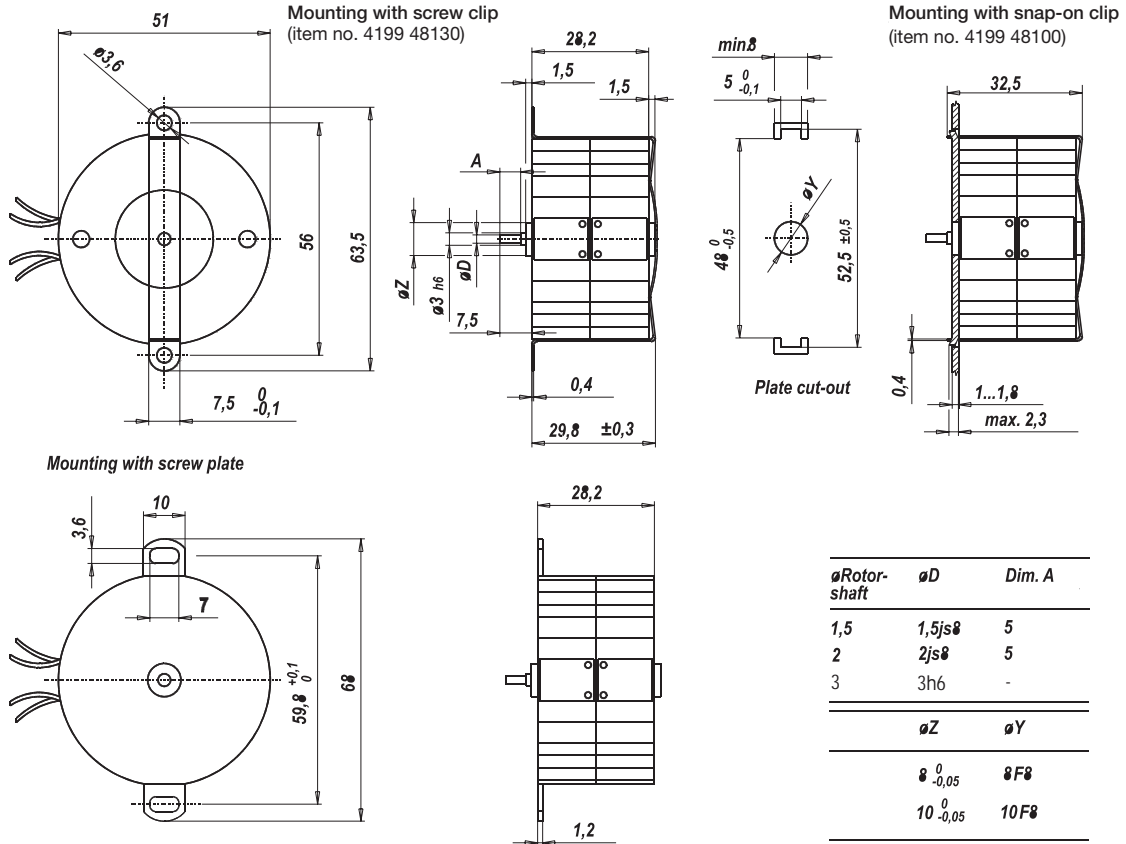
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## Technical Data

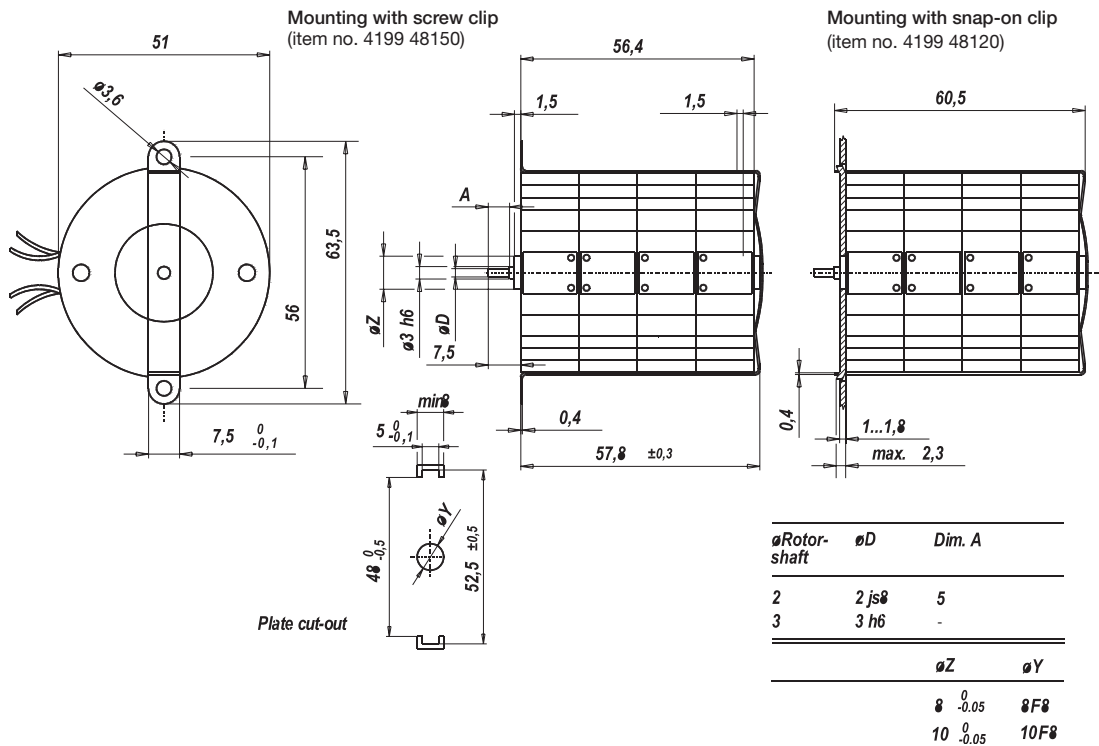
		UFB1	UFB3	UFB5	
bipolar					
	Holding torque $M_H$	cNm	4.7	8.8	7.0
	Detent torque $M_S$	cNm	0.4	0.68	0.68
	Rotor inertia $J_R$	$\text{gcm}^2$	14.2	24.2	17.8
UFB1/5	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	9.5	52	250
	Winding code		01	02	04
UFB3	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	5	25.5	125
	Winding code		01	02	04
unipolar		UFB2	UFB4		
	Holding torque $M_H$	cNm	3.7	6.5	
	Detent torque $M_S$	cNm	0.4	0.68	
	Rotor inertia $J_R$	$\text{gcm}^2$	14.2	24.2	
UFB2	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	15	61	251
	Winding code		01	02	03
UFB4	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	7.5	30.5	125
	Winding code		01	02	03
	Steps per revolution		24		
	Winding temperature $T_{max}$		105° C		
	Direction of rotation		reversible		

## Dimensions

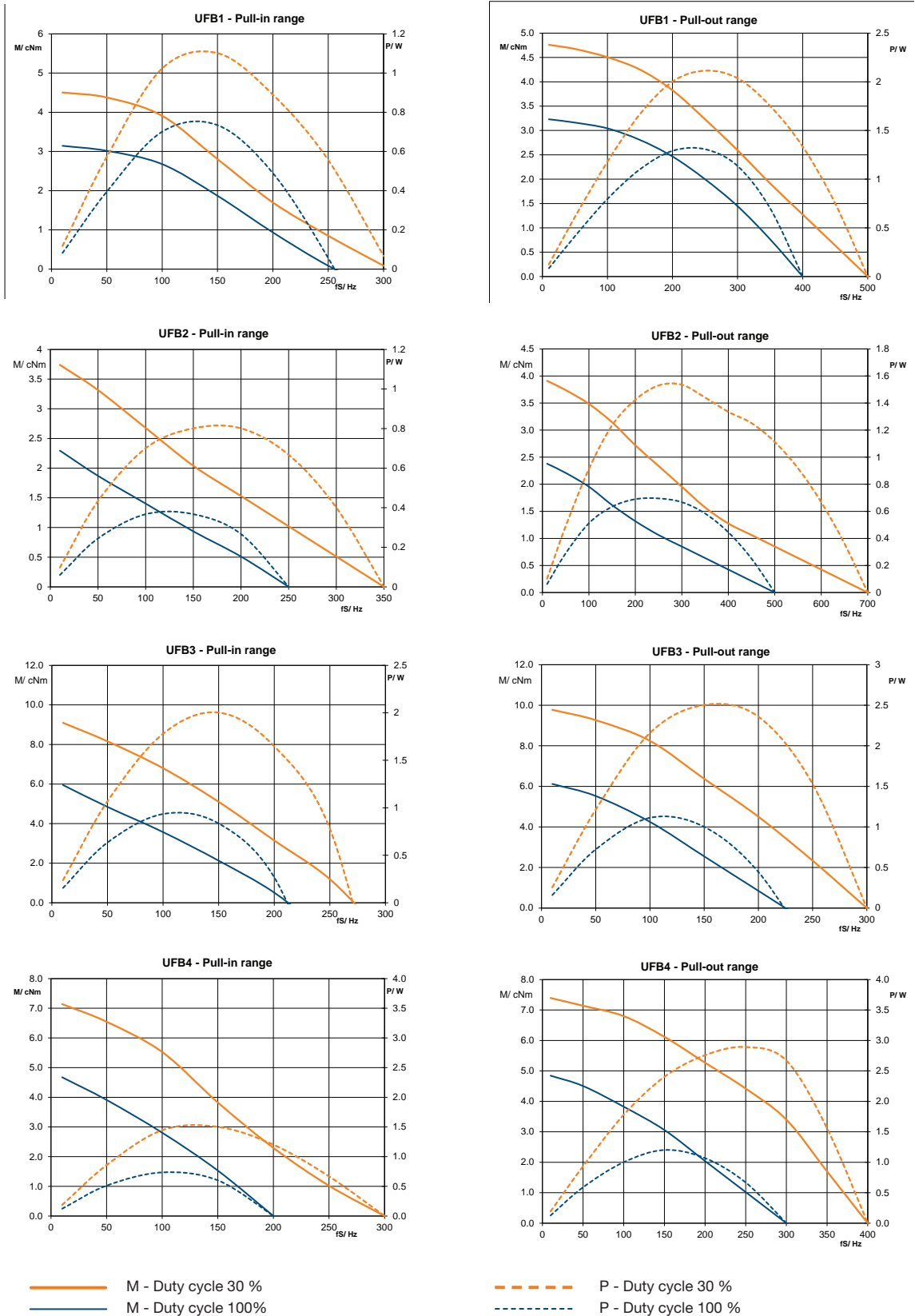
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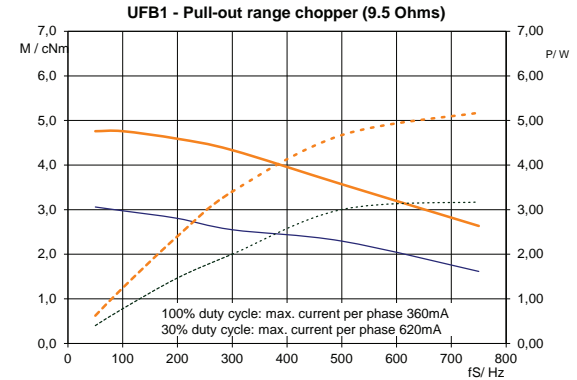
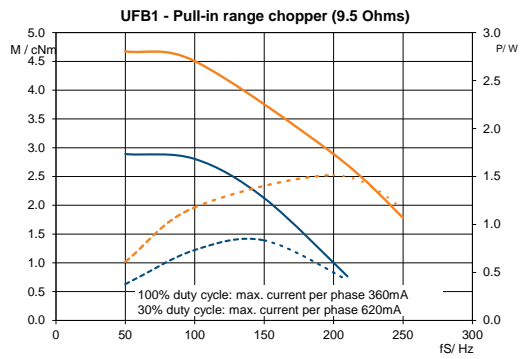
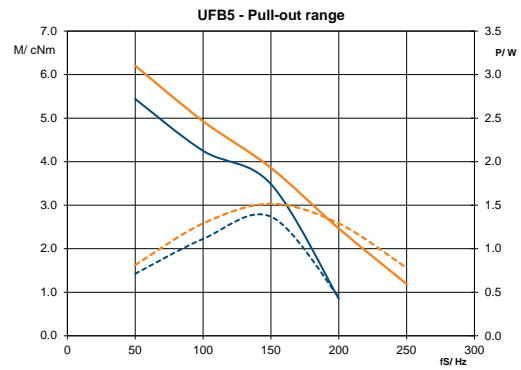
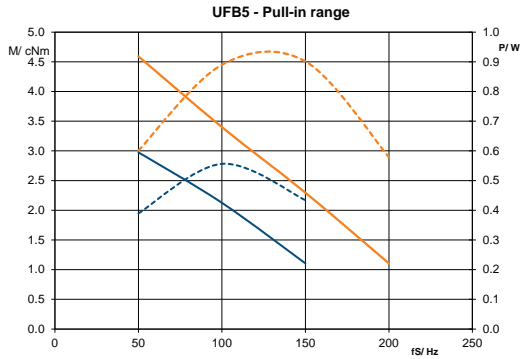
UFB3/4



## Performance Chart



## Performance Chart

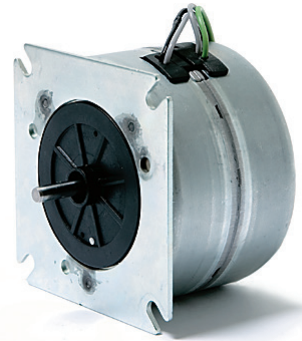


— M - Duty cycle 30 %  
— M - Duty cycle 100%

- - - P - Duty cycle 30 %  
- - - P - Duty cycle 100 %

## UPJ

Dimensions (mm)	∅ 64 x 43
Step angle (°)	11.25
Holding torque (cNm)	30 (UPJ1); 45 (UPJ5)
Detent torque (cNm)	2 (UPJ1); 7 (UPJ5)
Winding	bipolar
Gear combination	O, P, R



Note: All torque and power output values are minimum values, at rated voltage and motor temperature 23°C.

## Standard Data

Climatic class	wide-spread according to DIN IEC 60721-2-1 : 2015
Ambient temperature operation	°C -15 ... +40
Ambient temperature storage	°C -20 ... +100
Thermal resistance at f=0 R <sub>therm</sub>	29 K/W
Thermal class	130 (B) according to DIN EN 60085 : 2008
Approval	standard
Mounting	any position
Electrical connection	lead wires AWG22, insulation ∅ 1.6 ± 0.1 mm
Protection	IP30 according to DIN EN 60529 : 2014
Weight	500 g (UPJ1); 550 g (UPJ5)
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	Sintered bronze, self-lubricating

## Order Reference

Type	Stepper Motor	UPJ	1	1	N	01	R	E
Configuration	1 standard magnet 5 stronger magnet							
Rotor shaft, mounting	1 centring 10 mm, shaft length 8,1 mm, screw plate 2 centring 10 mm, shaft length 15,5 mm, screw plate A centring 14 mm, shaft length 8,1 mm, screw plate C centring 14 mm, shaft length 15,5 mm, screw plate							
Approval	N standard							
Winding code	see next page							
Direction	R reversible							
Cable	E 150 mm (other upon request)							

All specifications are representative only and maybe subject to variation. For confirmation of values, please contact Johnson Electric.  
Please also read "Saia Motors Important Notes" on catalog or at [www.johnsonelectric.com/SaiaMotorsNotes](http://www.johnsonelectric.com/SaiaMotorsNotes)



## Technical Data

bipolar (UPJ1)	Step angle	°	11.25
	Holding torque MH	cNm	30
	Detent torque Ms	cNm	2
	Rotor inertia JR	gcm <sup>2</sup>	85
	Steps per revolution		32
	Winding temperature increase	K	90
	Current per winding	A	1.25
	Inductance per winding	mH	9.5
	Power consumption	W	11.5
	Driver mode		Chopper drive

bipolar (UPJ5)	Step angle	°	11.25
	Holding torque MH	cNm	45
	Detent torque Ms	cNm	7
	Rotor inertia JR	gcm <sup>2</sup>	180
	Steps per revolution		32
	Winding temperature increase	K	90
	Current per winding	A	1.25
	Inductance per winding	mH	8
	Power consumption	W	11.5
	Driver mode		Chopper drive
Rated voltage U <sub>N</sub>	V	4.5	
Duty cycle	%	100	
Resistance R <sub>20</sub>	Ω	3.7	
Winding code		01	

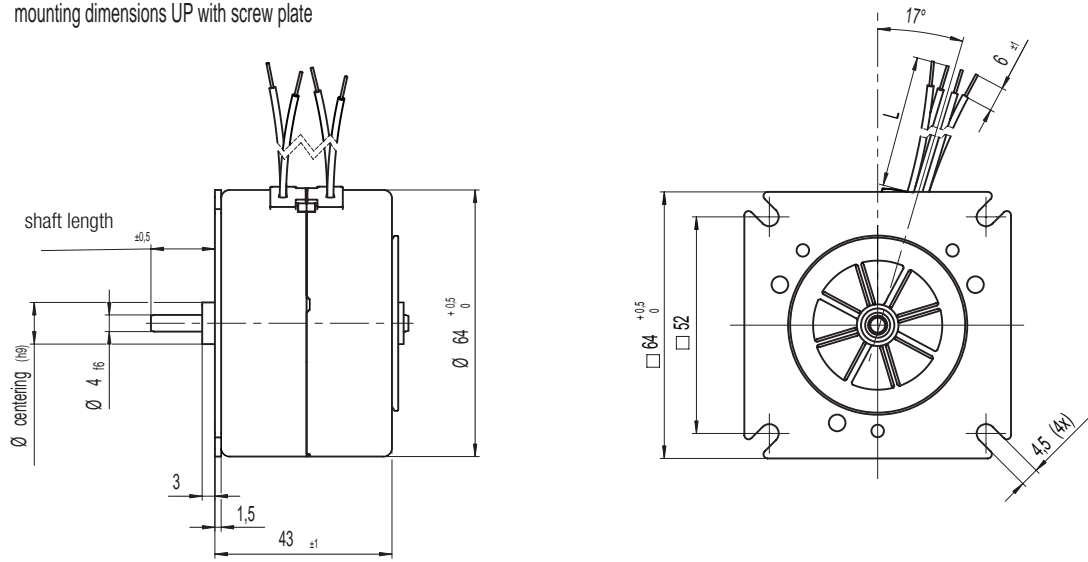
Circuit diagram Motor connections - bipolar

lead wire color	step			
	I	II	III	IV
red	+	+	-	-
blue	-	-	+	+
black	-	+	+	-
brown	+	-	-	+

→ clockwise rotation

← counter-clockwise rotation

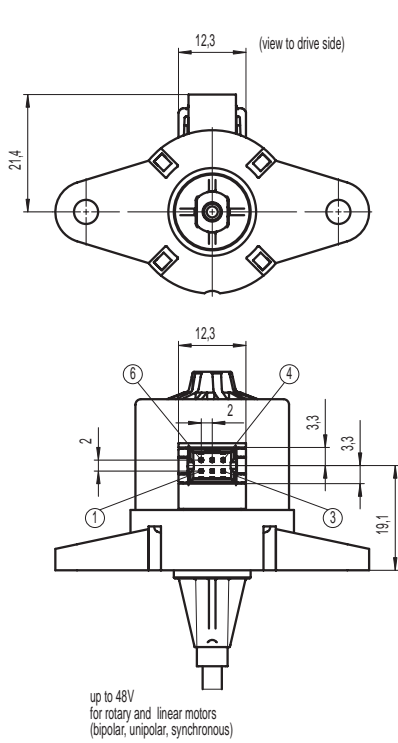
Dimensions mounting dimensions UP with screw plate



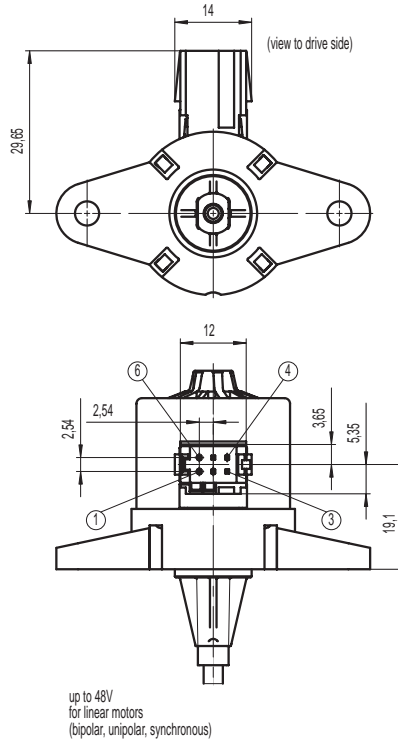


# Connection Types UC motors

**Connector B**  
for Molex Mill-Grid 51110-0660



**Connector C**  
for Tyco Modu IV 0-1740209-6



**Connector D**  
for Molex C-Grid III 90142-0006

