



# ENAPART



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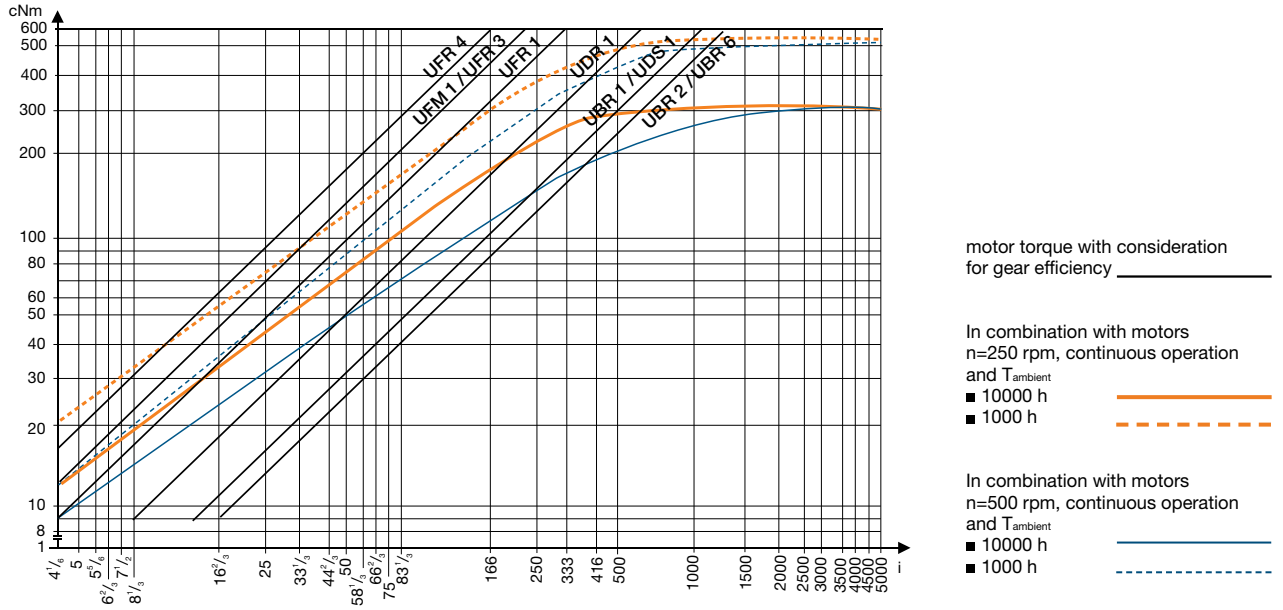








## Torque / ratio / life graph



## UGV

Dimensions (mm)	70 x 70
Height (mm)	17
Max. torque (cNm)	500
Ratios	8 <sup>1</sup> / <sub>3</sub> ... 2000
Internal slipping clutch	none
Standard shaft (mm)	Ø 8 x 12
Weight (g)	130
Motor combination	Series UB, UD, UF



## Standard Data

Mounting	any position
Axial thrust F <sub>A</sub>	100 N
Lateral force F <sub>R</sub>	400 N
Output shafts	Ø 8 x 12, other on request
Climatic class	wide-spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -15 ... +55
Ambient temperature storage	°C -40 ... +80

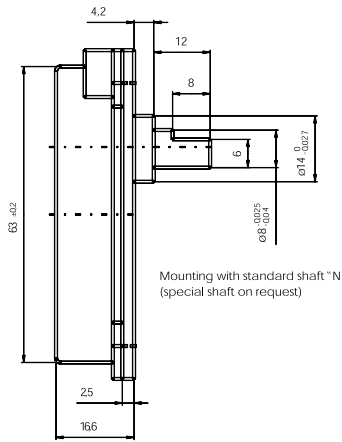
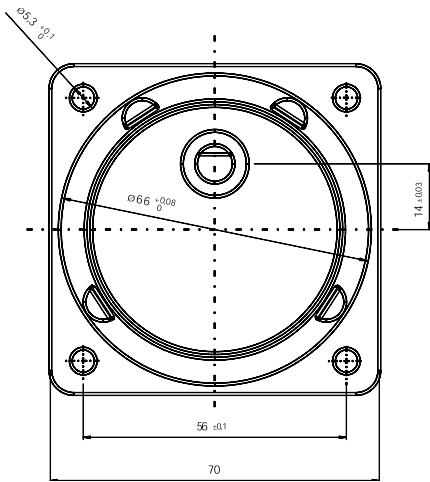
Ratios 8<sup>1</sup>/<sub>3</sub>    16<sup>2</sup>/<sub>3</sub>    25    41<sup>2</sup>/<sub>3</sub>    83<sup>1</sup>/<sub>3</sub>    100    125    250    500    2000

## Order Reference

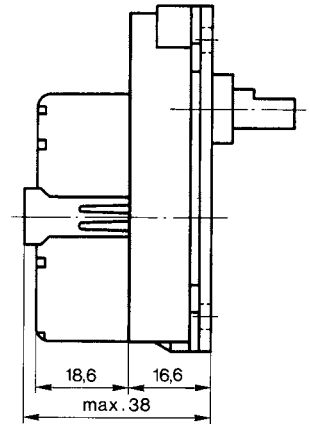
Type	Gearbox	UGV	100	N	N
Ratio	100				
Slipping clutch	N	Without slipping clutch			
Shaft end	N	Ø 8 x 12, other on request			

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)

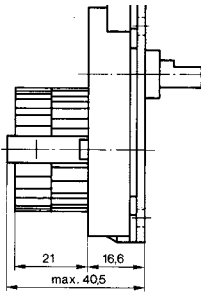
Dimensions



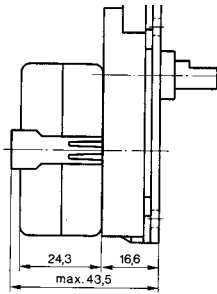
UDS 1..V



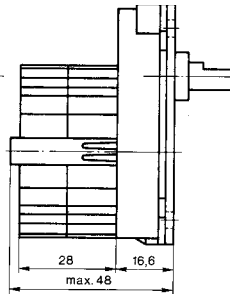
UBR 1/UBR 2..V



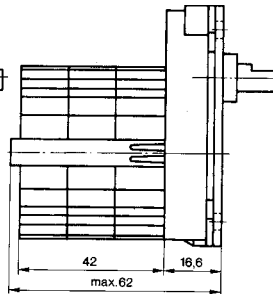
UDR 1..V



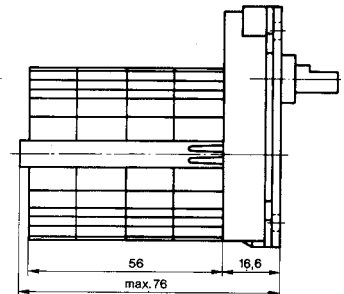
UFM 1/UFU1/UFR 1..V



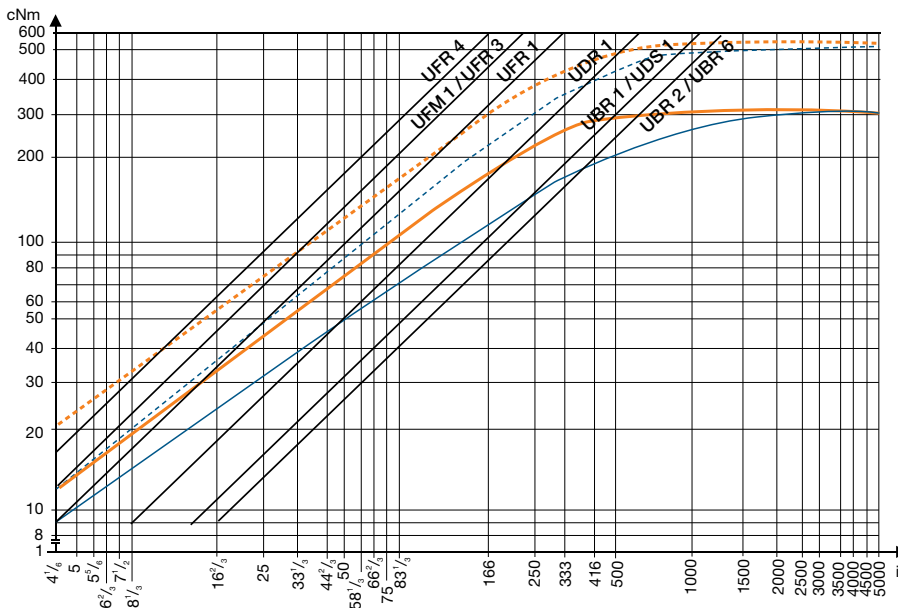
UFR 3..V



UFR 4..V



## Torque / ratio / life graph



motor torque with consideration for gear efficiency \_\_\_\_\_

In combination with motors  
n=250 rpm, continuous operation  
and T<sub>ambient</sub>

■ 10000 h ————  
■ 1000 h - - - - -

In combination with motors  
n=500 rpm, continuous operation  
and T<sub>ambient</sub>

■ 10000 h ————  
■ 1000 h - - - - -

# UGO/UGP

## UGO/UGP (STG60/61)

Dimensions (mm)	65 x 65/68 x 68
Height (mm)	29.8–38
Max. torque (cNm)	600
Ratios	6 1/4 ... 3750
Internal slipping clutch	none
Standard shaft (mm)	∅ 8 x 22
Weight (g)	230–330
Motor combination	series UF and UP



UGO (STG 60)



UGP (STG 61)

## Standard Data

Mounting	any position
Max. input speed*	3000 min <sup>-1</sup>
Max. output torque*	600 cNm
Max. input -and output power	please refer to table in Technical Data
Average back lash	unloaded 1.5 degree
	2–4 stages with 6 Nm 3 degree
	5–6 stages with 6 Nm 4 degree
Max. axial force F <sub>A</sub>	30 N
Max. lateral force F <sub>R</sub> , 12 mm from flange	80 N
Max. axial play	0.3 mm
Max. radial play	20 μm
Ambient temperature operation	-15 ... +60°C
Ambient temperature storage	-40 ... +100 °C

Ratio	6 1/4	12 1/2	18 3/4	25	31 1/4	37 1/2	46 7/8	50	62 1/2	75
	93 3/4	125	150	187 1/2	250	375	750	1500	2000	3750

\* Depends on ratio, see next page

## Order Reference

Type	Gearbox		STG60 UGO	6 1/4	M	N
Ratio	6 1/4					
Mounting layouts (fixing)	K	UGO				
	M	UGP	through holes			
	R	M4	threads on gearbox flange side			
	T	M4	threads on motor side			
	V	M4	threads on both sides			
	shaft end N ∅ 8 x 25, other upon request					
optional	motor pinion: see next pages		Motor Pinion Data			
	adaptor plate: see next pages		for adaptor plate			

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## Technical Data

Ratio	Stages *	Efficiency	Pinion type	Weight	Max. torque (Nm)	Max. input speed (rpm)
6 1/4	2	0.77	1	190	1.0	750
12 1/2	3	0.68	2	220	1.8	1500
18 3/4	3	0.68	3	220	2.7	2250
25	3	0.68	3	220	3.6	3000
31 1/4	3	0.68	4	220	4.5	3000
37 1/2	3	0.68	4	220	5.4	3000
46 7/8	4	0.60	3	250	6	3000
50	4	0.60	2	250	6	3000
62 1/2	4	0.60	2	250	6	3000
75	4	0.60	3	250	6	3000
93 3/4	4	0.60	3	250	6	3000
125	4	0.60	2	250	6	3000
150	4	0.60	3	250	6	3000
187 1/2	4	0.60	4	250	6	3000
250	5	0.53	2	280	6	3000
375	5	0.53	3	280	6	3000
750	5	0.53	4	280	6	3000
1500	6	0.46	4	310	6	3000
2000	6	0.46	4	310	6	3000
3750	6	0.46	4	310	6	3000

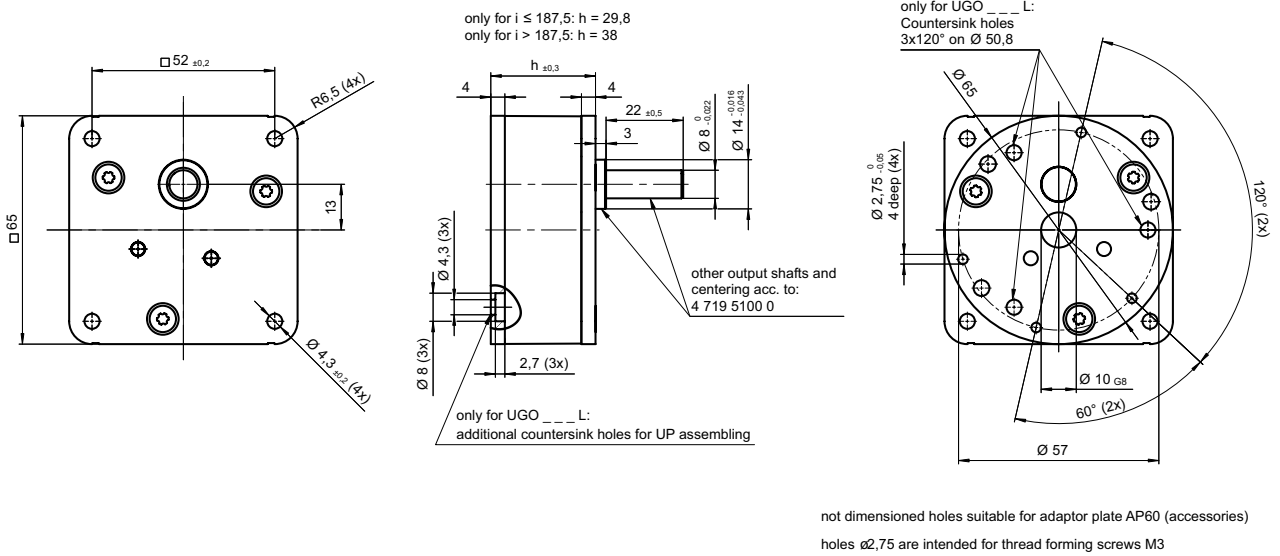
Additionally to the input speed limit: max. 120 rpm output speed

Technical Data valid for an ambient temperature operation: -15...+60°C

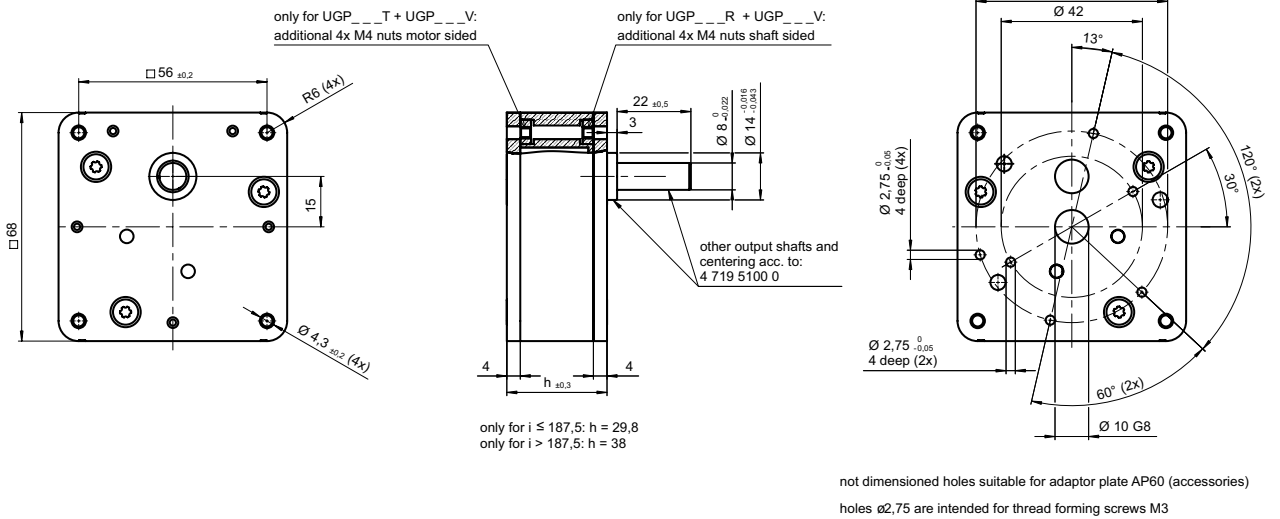
\* Direction of rotation of output- and motor-shaft at  
 2.4 and 6 stages - same  
 3 and 5 stages - opposite

# UGO/UGP

## Dimensions UGO



## UGP

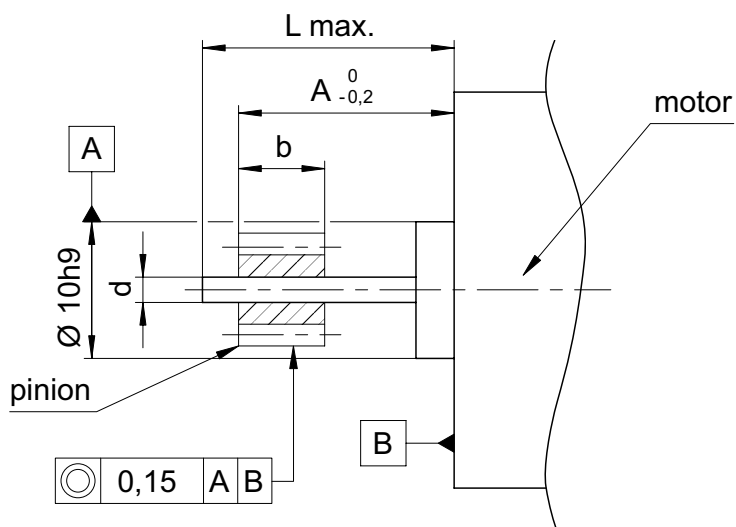


Other shafts on request

## Motor Pinion Data UGO/P (STG 60/61)

pinion type	pinion length b	motor pinion with hole d: 022 100 004 ...			
		Ø2.5S7	Ø3S7	Ø4X7	Ø5S7
1	6	-	020	030	040
2	4.5	-	080	090	110
3	4.5	270	280	290	310
4	4.5	580	590	600	610

Dimensions for motor assembly



Pinion position	Dimension	A	L
2 gear stages		8,9	9,6
3-6 gear stages		7,6	7,6

# AP 60

## AP 60

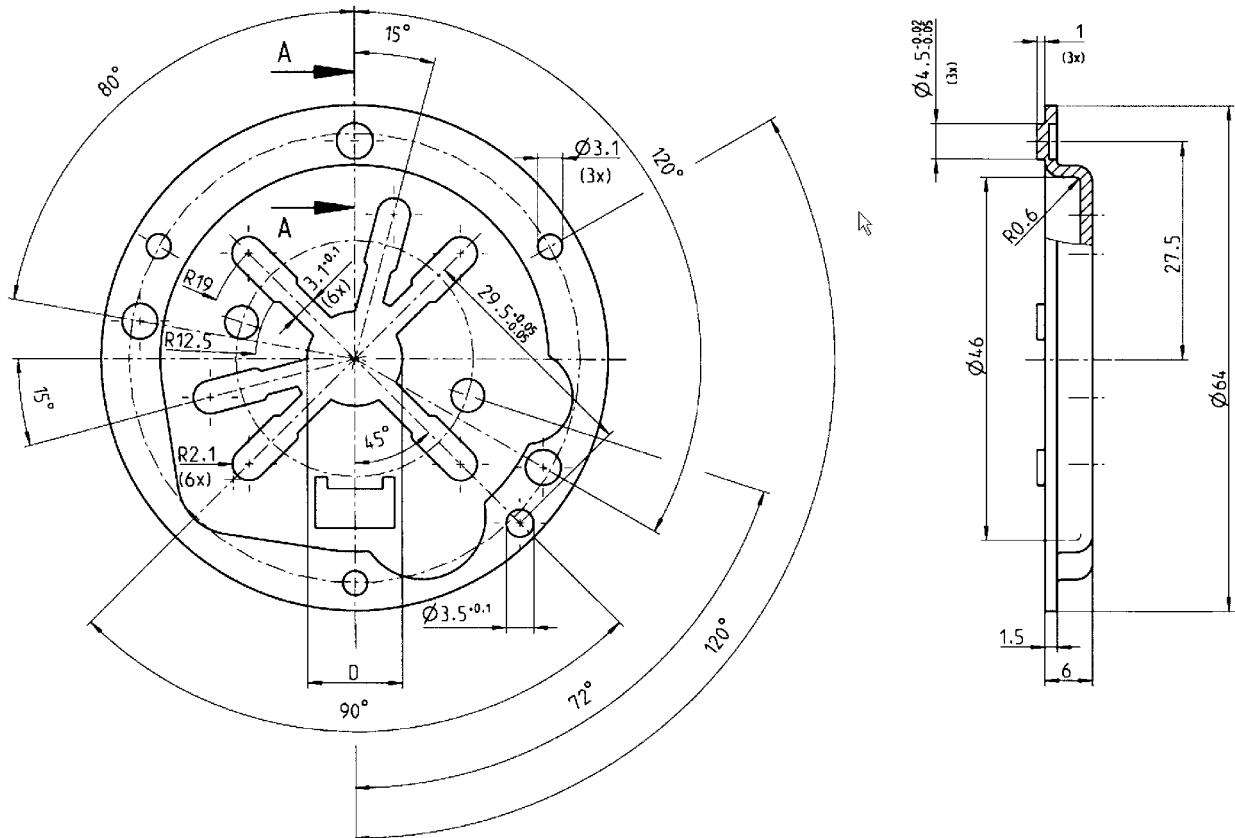
Dimensions (mm)  $\varnothing 64$

Height (mm) 6

### Adaptor Plate Data AP 60

Adaptor plate	Motor type	Manufacturer	Centring $\varnothing D$	Order reference
AP 6012	G 30	Dunker	12	81B-001-002-010
AP 6022	G 42, GR 42		22	81B-001-002-016
AP 6014	M 28, M 32	GEFEG	14	81B-001-002-012
AP 6022	M 42, M 48		22	81B-001-002-016

Dimensions



## UGJ

Dimensions (mm)	65 x 107
Height (mm)	28
Max. torque (cNm)	1500
Ratios	4 <sup>1/6</sup> ... 36.000.000
Internal slipping clutch	none
Standard shaft (mm)	∅ 12 x 20
Weight (g)	480
Motor combination	Series UB, UD, UF



## Standard Data

Mounting	any position
Axial thrust F <sub>A</sub>	400 N
Lateral force F <sub>R</sub>	600 N
Output shafts	∅ 12 x 20, other on request
Climatic class	wide-spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -15 ... +55
Ambient temperature storage	°C -40 ... +80

Ratios*	4 <sup>1/6</sup>	8 <sup>1/3</sup>	16 <sup>2/3</sup>	33 <sup>1/3</sup>	41 <sup>2/3</sup>	50	66 <sup>2/3</sup>	83 <sup>1/3</sup>	100	125	150	166 <sup>2/3</sup>	200
	250	500	1000	2000	2500	3000	4000	5000	6250	8333 <sup>1/3</sup>	10000	12500	15000
	20000	25000	30000	37500	60000	75000	120000	150000	300000	375000	750000	1500000	1800000
	2250000	3000000	3600000	4500000	6000000	9000000	11250000	12000000	18000000	36000000			

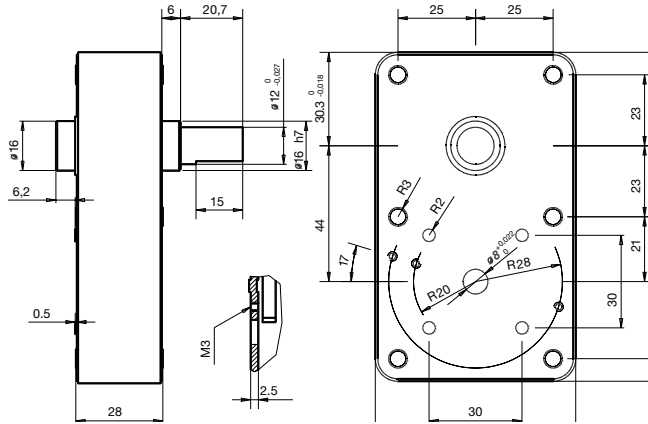
\* For ratio ≥ 2500 combination with UGD

## Order Reference

Type	Gearbox	UGJ	100	N	N
Ratio	100				
Slipping clutch	N	Without slipping clutch			
Shaft end	N	∅ 12 x 20, other on request			

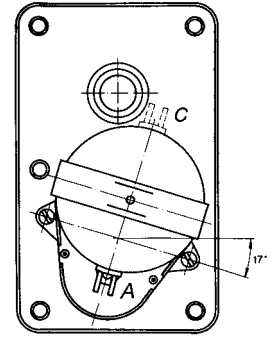
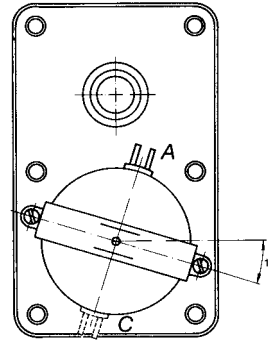
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## Dimensions



$i \leq 2000$

$i \geq 2500$



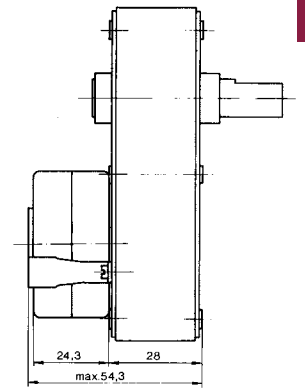
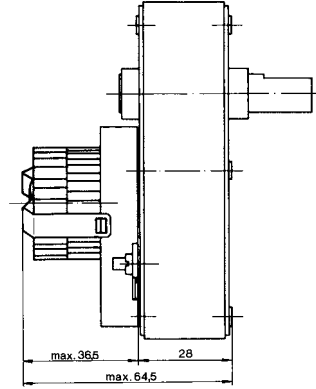
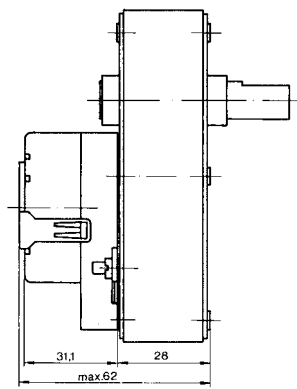
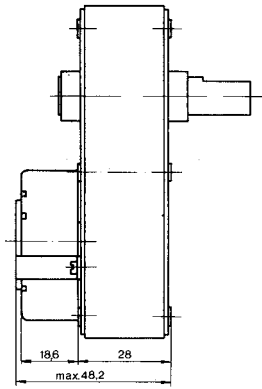
Lead outlet (A = standard position)

UDS 1..J,  $\leq 2000$

UDS 1..J,  $\geq 2500$

UBR 1/UBR 2..J,  $\geq 2500$

UDR 1..J,  $\leq 2000$

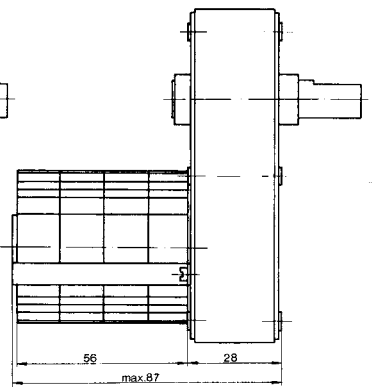
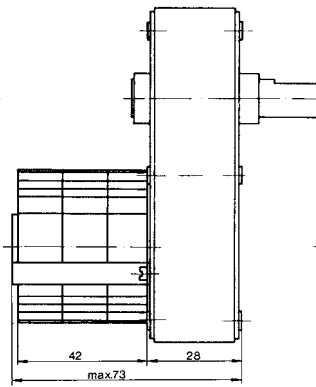
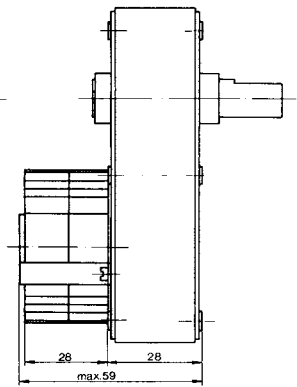
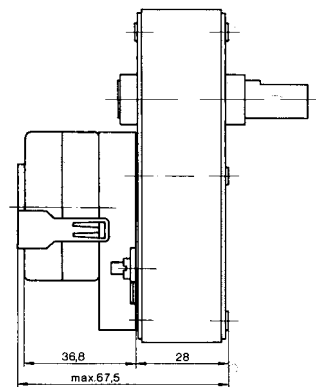


UDR 1..J,  $i \geq 2500$

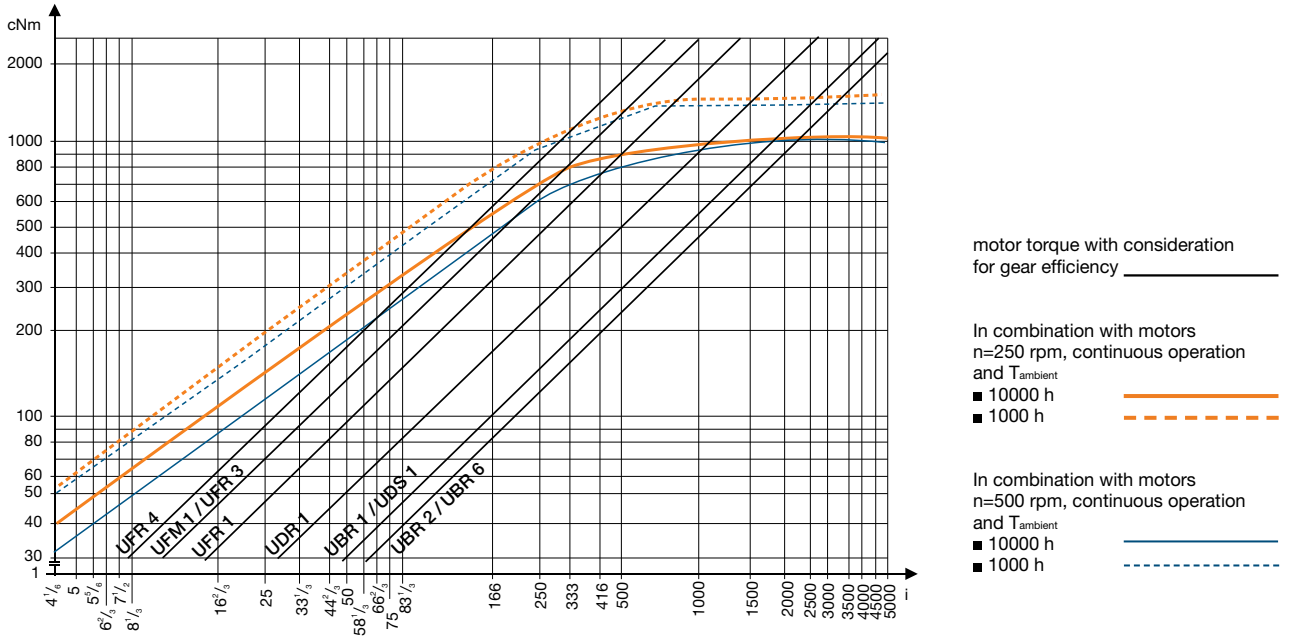
UFM 1/UFU 1/UFR 1..J,  $i \leq 2000$

UFR 3..J,  $i \leq 2000$

UFR 4..J,  $i \leq 2000$



Torque / ratio / life graph



## UGR (STG 200)

Dimensions (mm)	70 x 130
Height (mm)	38
Max. torque (cNm)	2000
Ratios	12.5 ... 375
Internal slipping clutch	none
Standard shaft (mm)	Ø 12 x 35
Weight (g)	depends on ratio
Motor combination	UP



## Standard Data

Mounting	any position
Max. input speed *	3000 min <sup>-1</sup>
Max. output torque *	2000 cNm
Max. input -and output power *	please refer to table in Technical Data
Average back lash unload	0.75°
2/3 stages with 4/10 Nm	1.25°
4/5 stages with 15/20 Nm	2°
Max. axial force F <sub>A</sub>	60 N
Max. lateral force F <sub>R</sub> , 20 mm from flange	80 N
Max. axial play	0.3 mm
Max. radial play	83 µm
Ambient temperature operation	-15 ... +60°C
Ambient temperature storage	-40 ... +100 °C

Ratio	12 1/2	37 1/2	62 1/2	75	93 3/4	125	250	375
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\* Depends on ratio, see next page

## Order Reference

Type	Gearbox	UGR	12 1/2	N	N
Ratio	12 1/2				
Mounting layouts	N	standard			
Shaft end	N	Ø 12 x 35, others upon request			
optional	motor pinion: see next pages	Motor Pinion Data			

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## Technical Data

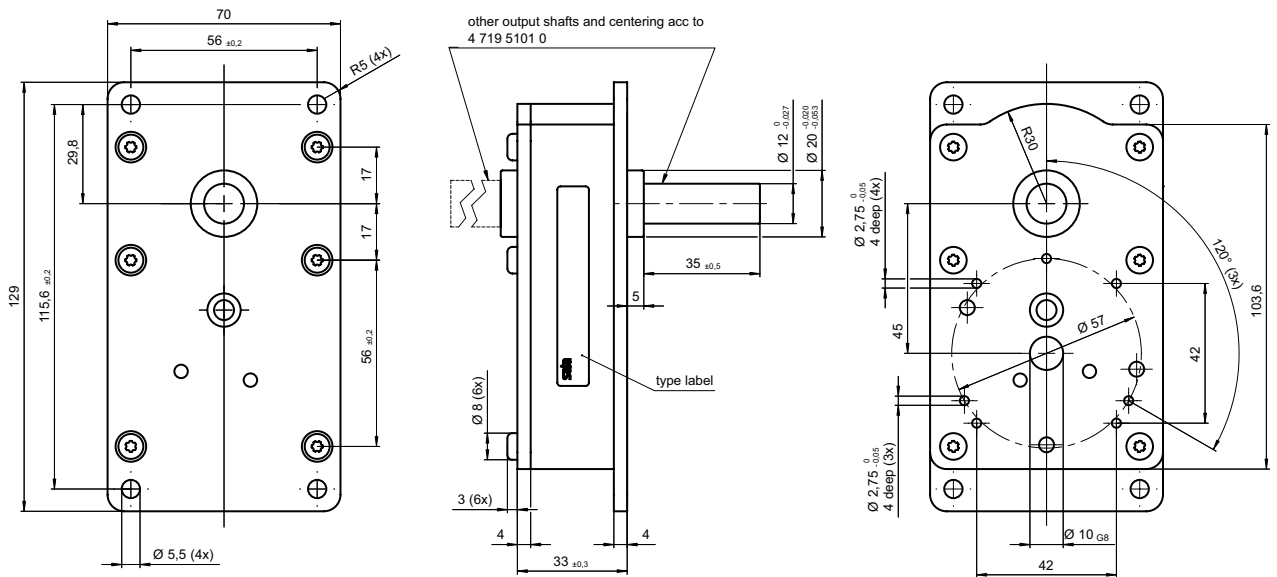
Ratio	Stages *	Efficiency	Pinion type	Weight	Max. torque (Nm)	Max. input speed (rpm)
12 1/2	2	0.77	1	560	3.6	1500
37 1/2	3	0.68	2	580	9.9	3000
62 1/2	4	0.60	3	600	14.6	3000
75	4	0.60	4	600	17.5	3000
93 3/4	4	0.60	4	600	20	3000
125	4	0.60	4	600	20	3000
250	5	0.53	5	620	20	3000
375	5	0.53	2	620	20	3000

Additionally to the input speed limit: max. 120 rpm output speed

Technical Data valid for an ambient temperature operation: -15...+60°C

\* Direction of rotation of output- and motor-shaft at  
 2 and 4 stages - same  
 3 and 5 stages - opposite

Dimensions other shafts on request

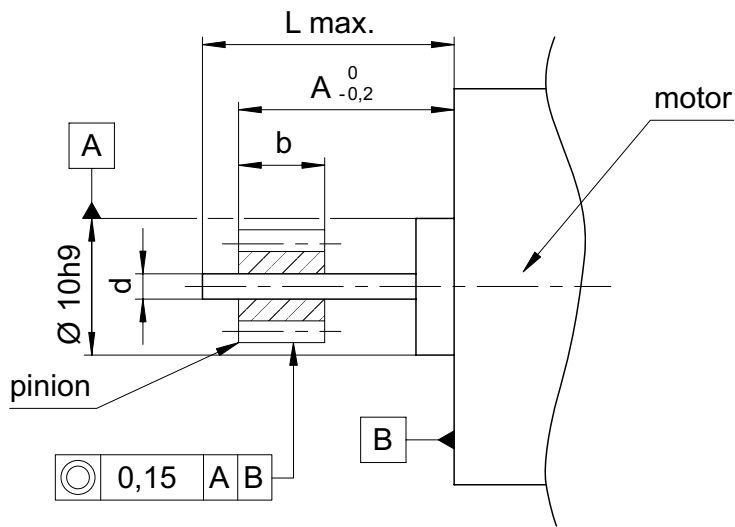


not dimensioned holes suitable for adaptor plate AP60 (accessories)  
 holes Ø2,75 are intended for thread forming screws M3

## Motor Pinion Data

pinion type	pinion length b	motor pinion with hole d: 022 100 020 ...		
		Ø3S7	Ø4X7	Ø5S7
1	11.5	-	130	140
2	6.8	280	290	300
3	11.5	360	370	380
4	11.5	400	410	-
5	6.8	-	250	260

Dimensions for motor assembly



Pinion position	Dimension	A	L
2 gear stages		16.1	28
3 gear stages		10.3	10.3
4 gear stages		15.1	15
5 gear stages		10.9	11

## Planetary Gearbox UGW

Dimensions (mm)	∅ 34 x 62,4 (without motor)
Max. torque (Nm)	4,5 (higher torque on request)
Ratio	541 (4 stages ; other ratios on request)
Standard shaft (mm)	∅ 8 x 21,3 with flat (other dimensions on request)
Motor combinations	Stepper/Synchronous motor UC ; DC motor HC3...6



## Standard Data

Mounting	any position
Axial thrust FA	20 N (depend on lifetime spec ; higher force on request)
Lateral force FR	20 N (depend on lifetime spec ; higher force on request)
Climatic class	wide spread according to DIN IEC 60721-2-1
Ambient temperature operation	°C -20 ... +70
Ambient temperature storage	°C -20 ... +80
Weight	290 g (with DC motor HC313XLG)
Bearing	sintered bronze, self-lubricating

## Order Reference

Example motor combination: with DC motor HC313XLG

Note: UGW is deliverable only as gearbox motor combination

Motor type	JP	DC Motor (brushed)	JP	3	A	N	X9	W	54C	N	F	N
Motor size	3	diameter 27.5 mm										
Motor version	A	13 V; no-load speed 7400 rpm										
Approval	N	standard										
Voltage	X9	13 Vdc										
Gearbox size	W	planetary gearbox diameter 34 mm										
Gear ratio	54C	541 (4 stages)										
Connection	N	standard										
	A	special										
Bearing/ Gear material	F	sintered bearing / metal gear wheels										
Shaft end	N	standard shaft ∅ 8 x 21.3 with flat										

## Technical Data

Technical data of bare gearbox. Data of complete gearmotors on request

Stages	4
Ratio *	541
Max. torque [Nm] **	4,5
Short peak torque [Nm] **	6
Gear efficiency **	0,6

\* Approximate value, precise values on request.

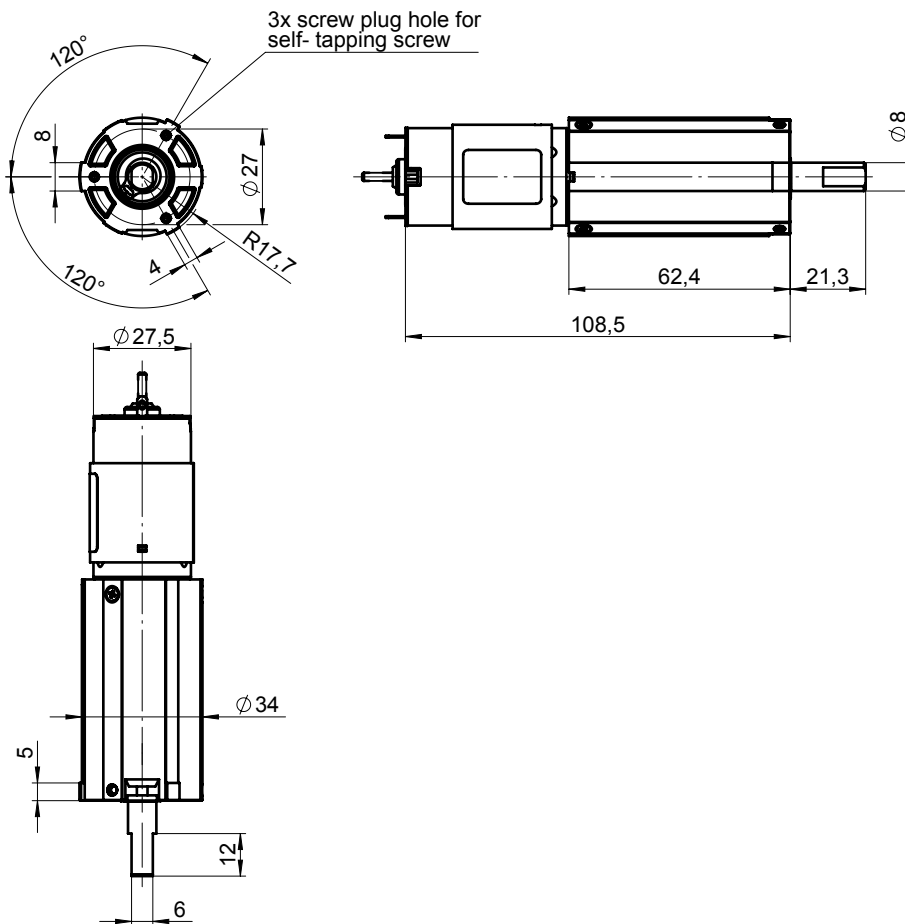
Other ratios between 3,8 ...541 on request.

\*\* Approximate values, must be tested under specific operating conditions in application.

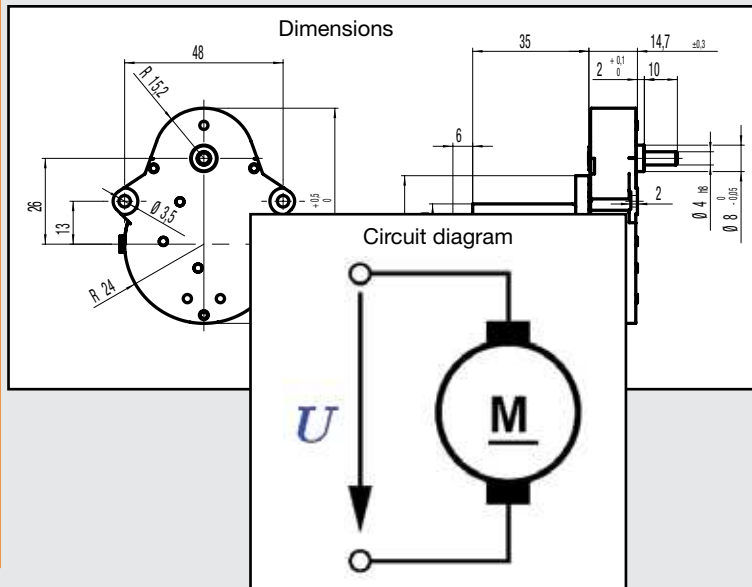
Higher values on request.

### Dimensions

Example motor combination: with DC motor HC313XLG ; standard shaft



# Gearboxes with DC & BLDC Motors



## Gearbox UGM with DC Motor PC280LG



Voltage (Vdc)  
Height (mm) 12/24

Max. torque  
(cNm) 60

## Standard Data

Ambient temperature operation	°C -10 ... +55
Ambient temperature storage	°C -20 ... +80
Rotor stalling	not permissible
Thermal class	130 (B) according to DIN EN 60085 : 2008
Approval	standard
Electrical connection	terminals
Mounting	any position
Weight	105 g
Axial thrust	20 N
Lateral force	100 N
Output shaft	∅ 4 × 10 mm (others on request)
Slipping clutch	no
Bearings	sintered bronze, self-lubricating

## Order Reference

Motor type	JP	DC Motor (brushed)	JP	2	A	N	M4	M	40C	N	N	N
Motor size	2	diameter 24.4 mm										
Motor version	A	12 V; no-load speed 3600 rpm										
	B	24 V; no-load speed 2400 rpm										
Approval	N	standard										
Voltage	M1	12 Vdc										
	M4	24 Vdc										
Gearbox size	M											
Gear ratio	40C	400										
Connection	N	terminals, without lead wire										
	A	with lead wire and connector (on request)										
Slipping clutch	N	without slipping clutch										
Shaft end	N	standard shaft ∅ 4 × 10, others on request										

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Please also read "Saia Motors Important Notes" on catalog or at [www.johnsonelectric.com/SaiaMotorsNotes](http://www.johnsonelectric.com/SaiaMotorsNotes)

## Technical Data

### Motor JP2A

Voltage supply	V	12
No-load motor speed	rpm	3600
Rated motor speed	rpm	2900
Rated motor current	mA	105
Rated motor torque	cNm	0.24

Gear ratio		120	150	240	300	400	500	1000	1500
Rated output speed	rpm	24	20	12	10	8	6	3	2
Rated output torque	cNm	18	23	36	45	60	60	60	60

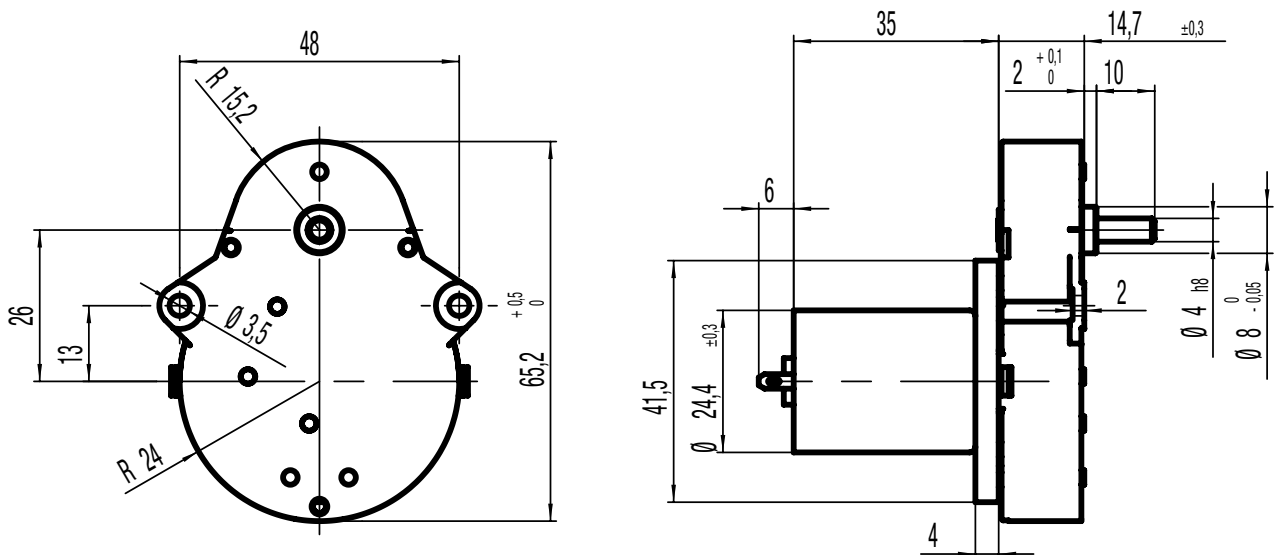
### Motor JP2B

Voltage supply	V	24
No-load motor speed	rpm	2400
Rated motor speed	rpm	1800
Rated motor current	mA	34
Rated motor torque	cNm	0.19

Gear ratio		120	150	240	300	400	500	1000	1500
Rated output speed	rpm	15	12	8	6	4.5	4	2	1.5
Rated output torque	cNm	14	18	28	36	48	59	60	60

All values approximate. Speed tolerance on request.  
 Output torque permissible max. 60cNm.  
 Continuous duty cycle permissible at rated torque.  
 Higher torque at lower duty cycle on request.  
 Lifetime on request.

## Dimensions



## Gearbox with UGB DC Motor PC280LG

Voltage (Vdc)  
Height (mm) 12/24

Max. torque  
(cNm) 200



## Standard Data

Ambient temperature operation	°C -10 ... +55
Ambient temperature storage	°C -20 ... +80
Rotor stalling	not permissible
Approval	standard
Electrical connection	terminals
Mounting	any position
Weight	200 g
Axial thrust	100 N
Lateral force	300 N
Output shaft	∅ 8 × 12 mm (others on request)
Slipping clutch	optional
Bearings	sintered bronze, self-lubricating

## Order Reference

Motor type	JP	DC Motor (brushed)	JP	2	A	N	M4	B	30C	N	N	N
Motor size	2	diameter 24.4 mm										
Motor version	A	12 V; no-load speed 3600 rpm										
	B	24 V; no-load speed 2400 rpm										
Approval	N	standard										
Voltage	M1	12 Vdc										
	M4	24 Vdc										
Gearbox size	B											
Gear ratio	30C	300										
Connection	N	terminals, without lead wire										
	A	with lead wire and connector (on request)										
Slipping clutch	N	without slipping clutch										
Shaft end	N	standard shaft ∅ 8 × 12, others on request										

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## Technical Data

### Motor JP2A

Voltage supply	V	12
No-load motor speed	rpm	3600
Rated motor speed	rpm	2900
Rated motor current	mA	105
Rated motor torque	cNm	0.24

Gear ratio		150	200	300	500	600	750	1000	1500
Rated output speed	rpm	20	15	10	6	5	4	3	2
Rated output torque	cNm	23	30	45	75	90	115	150	200

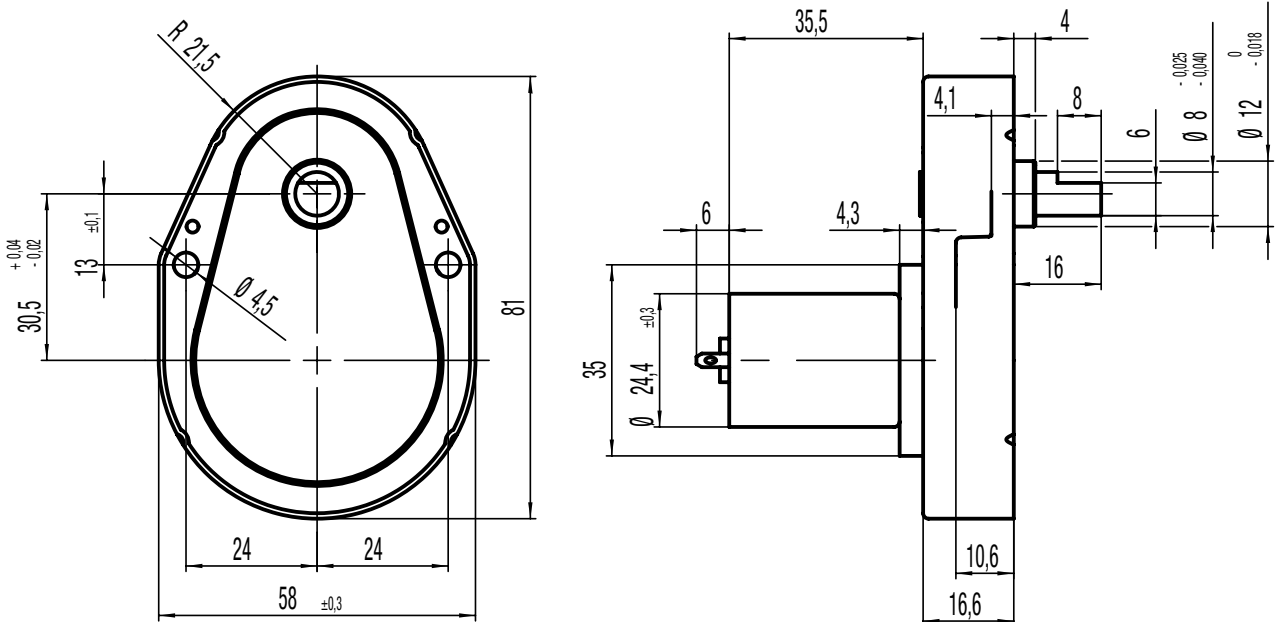
### Motor JP2B

Voltage supply	V	24
No-load motor speed	rpm	2400
Rated motor speed	rpm	1800
Rated motor current	mA	34
Rated motor torque	cNm	0.19

Gear ratio		150	200	300	500	600	750	1000	1500
Rated output speed	rpm	12	9	6	4	3	2.5	2	1.5
Rated output torque	cNm	18	24	36	59	70	90	120	180

All values approximate. Speed tolerance on request.  
 Output torque permissible max. 200cNm.  
 Continuous duty cycle permissible at rated torque.  
 Higher torque at lower duty cycle on request.  
 Lifetime on request.  
 Other gear ratios on request.

### Dimensions



# UGF-DC

## Gearbox UGF with DC Motor HC485G



Voltage (Vdc) 12/24

Max. torque  
(cNm) 400

### Standard Data

Ambient temperature operation	°C -10 ... +55
Ambient temperature storage	°C -20 ... +80
Rotor stalling	not permissible
Approval	standard
Electrical connection	terminals
Mounting	any position
Weight	290 g
Axial thrust	100 N
Lateral force	400 N
Output shaft	∅ 8 × 12 mm (others on request)
Slipping clutch	no
Bearings	sintered bronze, self-lubricating

### Order Reference

Motor type	JP	DC Motor (brushed)	JP	4	A	N	M4	F	33C	N	N	N
Motor size	4	diameter 31.2 mm										
Motor version	A	12 V; no-load speed 4500 rpm										
	B	24 V; no-load speed 4600 rpm										
Approval	N	standard										
Voltage	M1	12 Vdc										
	M4	24 Vdc										
Gearbox size	F											
Gear ratio	33C	333										
Connection	N	terminals, without lead wire										
	A	with lead wire and connector (on request)										
Slipping clutch	N	without slipping clutch										
Shaft end	N	standard shaft ∅ 8 × 12, others on request										

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## Technical Data

### Motor JP2A

Voltage supply	V	12
No-load motor speed	rpm	4500
Rated motor speed	rpm	3700
Rated motor current	mA	520
Rated motor torque	cNm	1.0

Gear ratio		125	166	250	333	500	750	1000	1200
Rated output speed	rpm	30	22	15	11	7.5	5	3.7	3.1
Rated output torque	cNm	80	100	150	200	300	400	400	400

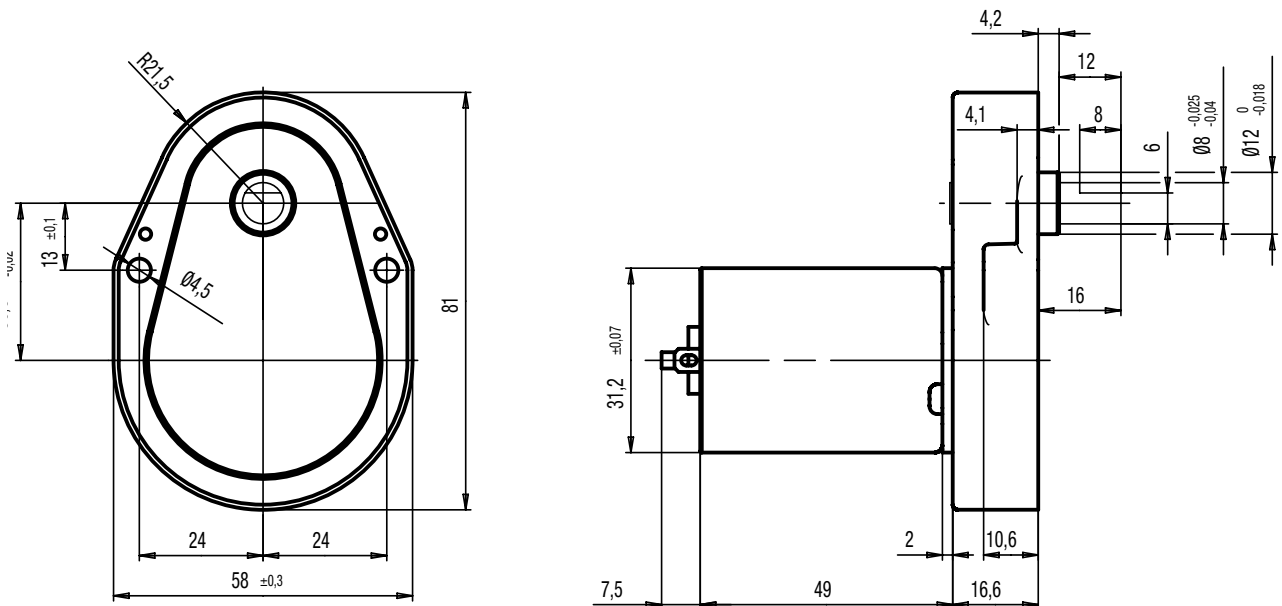
### Motor JP2B

Voltage supply	V	24
No-load motor speed	rpm	4600
Rated motor speed	rpm	3900
Rated motor current	mA	260
Rated motor torque	cNm	1.0

Gear ratio		125	166	250	333	500	750	1000	1200
Rated output speed	rpm	31	23	16	12	8	5.2	3.9	3.2
Rated output torque	cNm	80	100	150	200	300	400	400	400

All values approximate. Speed tolerance on request.  
 Output torque permissible max. 400cNm.  
 Continuous duty cycle permissible at rated torque.  
 Higher torque at lower duty cycle on request.  
 Lifetime on request.  
 Other gear ratios on request.

## Dimensions



## Gearbox UGO with BLDC Motor E9IDS



Voltage (Vdc)	24
Max. torque (cNm)	600
Characteristics	Driver electronics integrated inside motor
Options	Closed loop speed control Brake feature by relay shortcut circuit

## Standard Data

Ambient temperature operation	°C 0 ... +50
Ambient temperature storage	°C -20 ... +80
Rotor stalling	not permissible
Approval	standard
Electrical connection	connector at motor
Mounting	any position
Weight	500 – 600 g
Axial thrust	30 N
Lateral force	80 N
Output shaft	∅ 8 × 25 mm (others on request)
Slipping clutch	no
Bearings	bronze

## Order Reference

Motor type	JP	BLDC Motor (brushed)	JP	9	B	N	M4	O	75C	A	N	N
Motor size	9	diameter 50 mm										
Motor version	B	24 V; no-load speed 5900 rpm										
Approval	N	standard										
Voltage	M4	24Vdc										
Gearbox size	O											
Gear ratio	75C	750										
Connection	N	lead wires										
	A	with connector at motor										
Slipping clutch	N	without slipping clutch										
Shaft end	N	standard shaft ∅ 8 × 25, others on request										

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## Technical Data

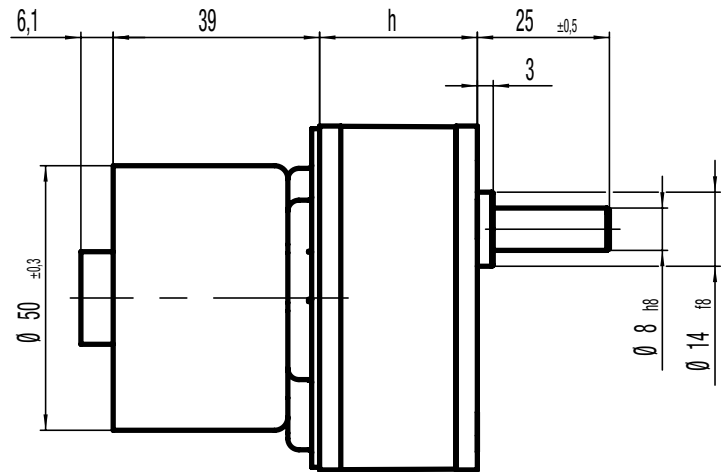
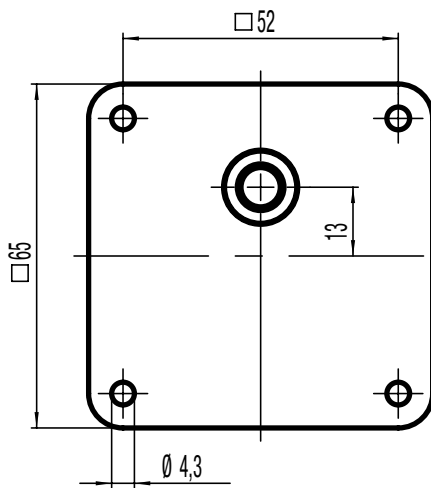
Motor JP2A

Voltage supply	V	24
No-load motor speed	rpm	5900
Rated motor speed	rpm	4600
Rated motor current	mA	850
Rated motor torque	cNm	3.0

Gear ratio		18.75	37.5	62.5	93.75	125	187.5	375	750
Rated output speed	rpm	240	120	74	48	37	24	12	6
Rated output torque	cNm	40	80	120	170	230	340	600	600

All values approximate. Speed tolerance on request.  
 Output torque permissible max. 600cNm.  
 Continuous duty cycle permissible at rated torque.  
 Higher torque at lower duty cycle on request.  
 Lifetime on request.  
 Other gear ratios on request.

### Dimensions



$h = 29,8$  (ratio max. 187,5)  
 $h = 38$  (ratio >187,5)

## Gearbox UGP with DC Motor HC785G

Voltage (Vdc) 24

Max. torque  
(cNm) 600



### Standard Data

Ambient temperature operation	°C 0 ... +50
Ambient temperature storage	°C -20 ... +80
Rotor stalling	not permissible
Approval	standard
Electrical connection	terminals
Mounting	any position
Weight	500 – 600 g
Axial thrust	30 N
Lateral force	80 N
Output shaft	∅ 8 × 25 mm (others on request)
Slipping clutch	no
Bearings	bronze

### Order Reference

Motor type	JP	DC Motor (brushed)	JP	7	B	N	M4	P	37C	N	N	N
Motor size	7	diameter 42 mm										
Motor version	B	24 V; no-load speed 4500 rpm										
Approval	N	standard										
Voltage	M4	24 Vdc										
Gearbox size	P											
Gear ratio	37C	375										
Connection	N	terminals, without lead wire										
	A	with lead wire and connector (on request)										
Slipping clutch	N	without slipping clutch										
Shaft end	N	standard shaft ∅ 8 × 25, others on request										

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## Technical Data

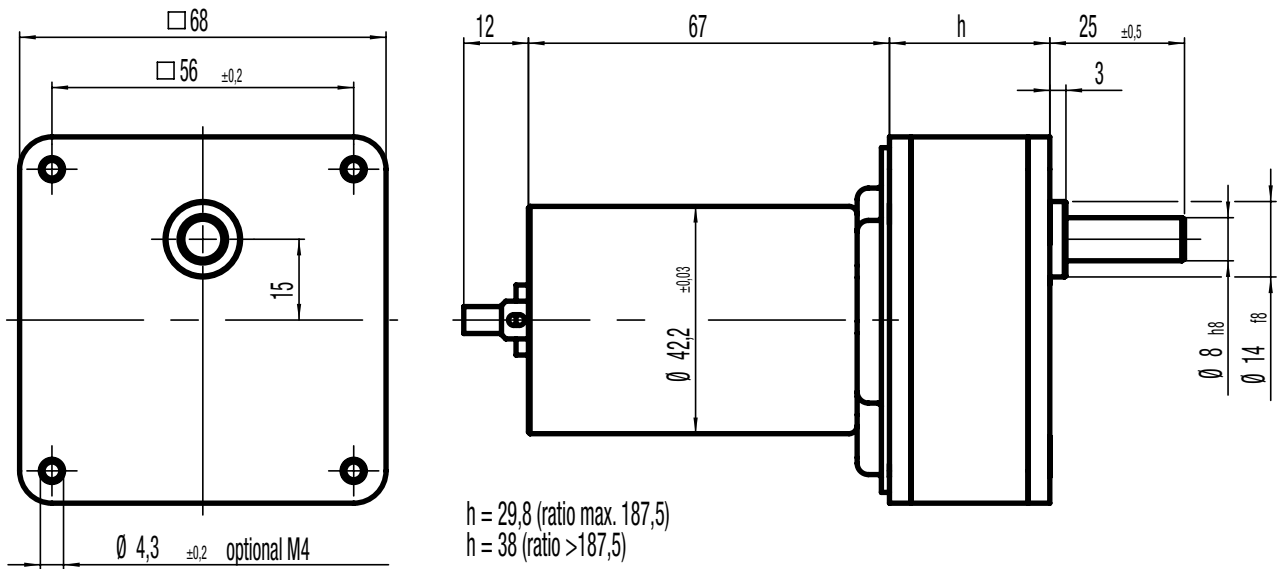
Motor JP7B

Voltage supply	V	24
No-load motor speed	rpm	4500
Rated motor speed	rpm	3800
Rated motor current	mA	900
Rated motor torque	cNm	3.5

Gear ratio		18.75	37.5	62.5	93.75	125	187.5	375	750
Rated output speed	rpm	200	100	60	40	30	20	10	5
Rated output torque	cNm	45	90	140	200	270	400	600	600

All values approximate. Speed tolerance on request.  
 Output torque permissible max. 600cNm.  
 Continuous duty cycle permissible at rated torque.  
 Higher torque at lower duty cycle on request.  
 Lifetime on request.  
 Other gear ratios on request.

### Dimensions







## UCC1/7

Dimensions (mm)	∅ 28 x 31
Travel (mm)	10/13
Voltage (V) **	12–230
Speed (mm/s)	
50 Hz	4.16
60 Hz	5
Max. Force (N)*	48



\* Depends on winding, frequency and lifetime required. Values for connector versions (C, D) / lead wire versions (N) up to 20 % lower. Drive against end stops only permissible after clarification of operating conditions and approval by Saia motors. Radial forces on the shaft will reduce life time and performance.

\*\* regard circuit diagram and connector type

Note: All force 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
Winding coil temperature increase	K 60
Approval	standard
Mounting	any position
Electrical connection	connector type C, D, N
Protection	IP40 according to DIN EN 60529 : 2014
Weight	67 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	ball bearing

## Order Reference

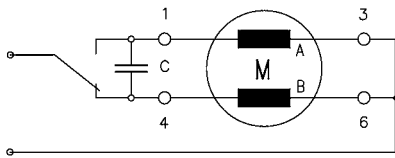
Type	Synchronous Motor	UCC	13	N	B4	D	1B
Configuration	13 standard magnet	73 stronger magnet					
Approval	N						
Voltage/frequency	see next pages						
Connection	C see next pages "Connection Types" and page 145 "Connection Types" for B						
Shaft	1B Travel 13 mm ± 0.7 mm (other standard shafts see under dimensions)						

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)

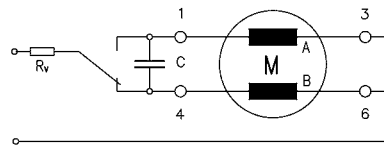
## Technical Data

Rated frequency	Hz	50		
Axial speed	mm/s	4.16		
Tolerance of voltage		standard power supply system +10% / -10%		
Linear travel max.	mm	10/13		
Axial play at $\pm 20$ N force	mm	< 0.25		
Winding temperature $T_{max}$		130		
Rated voltage $U_N$	V	12	24	110 <sup>1)</sup>
Duty cycle	%	100	100	100
Resistance $R_{20}$	$\Omega$	53	210	5000
Capacitor $C_{50}$	$\mu F/V \pm 10\%$	18/20	4.7/40	0.22/200
Winding code		B1	B4	C8

Circuit diagram Parallel circuit 12 V, 24 V, 48 V

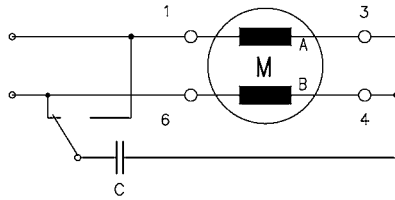


Parallel circuit 230 V (only for connector N) with 110 V motor and resistor  $R_V$

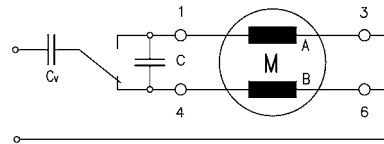


$R_V = 5.6 \text{ k}\Omega, 3 \text{ W}$

Series circuit 110 V (only for connector N)



Parallel circuit 230 V (only for connector N) with 110 V motor and capacitor  $C_V$



$C_V = 0.33 \mu F, 250 \text{ VAC}$

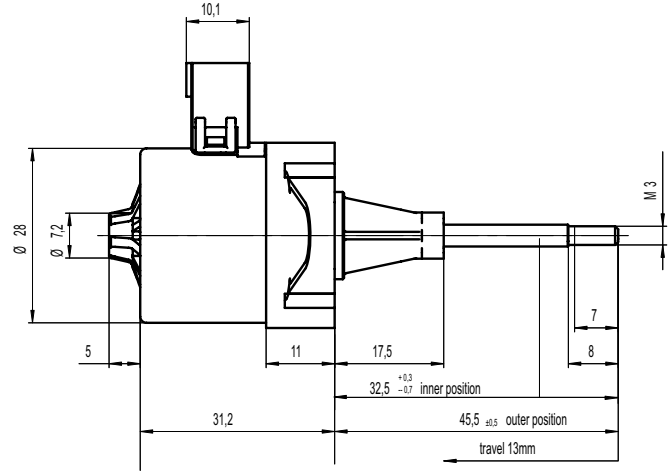
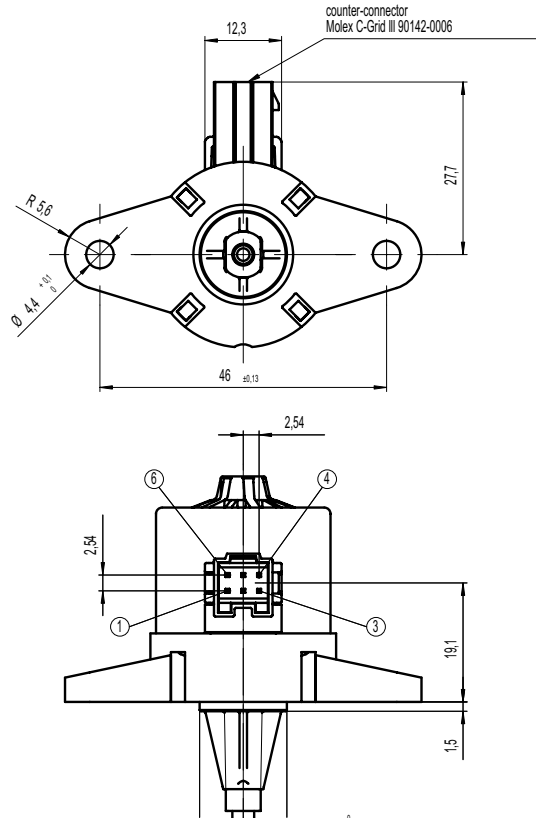
switch to

- 1 Pull (in)
- 4 Push (out)
- 6 Push (out)  
(for series circuit)

<sup>1)</sup> 110 V version available with 150 mm lead wires AWG26 only  
Standard versions:

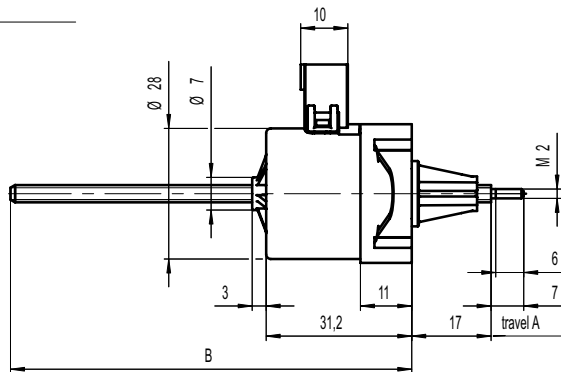
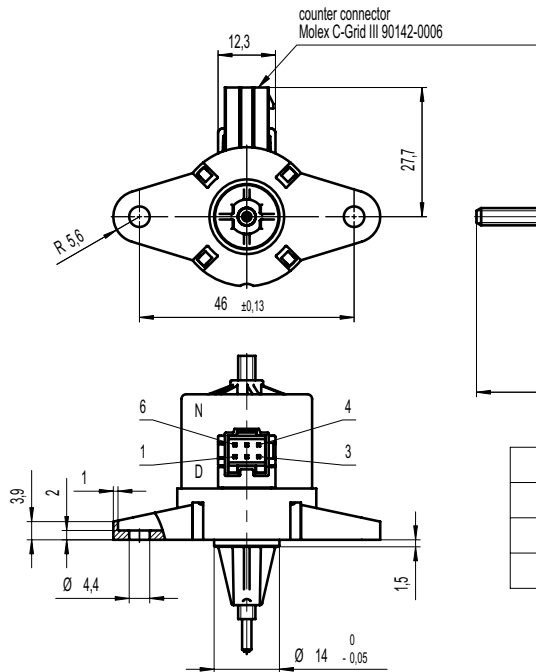
Shaft type (see dimensions)	Order code
1B	UCC13NC8N1BZ4
1E	UCC13NC8N1EZ4
1S	UCC13NC8N1SZ4
1R	UCC13NC8N1RZ4
1Q	UCC13NC8N1QZ4

## Dimensions Version with Connector D, with 13 mm travel, shaft 1B and 1E



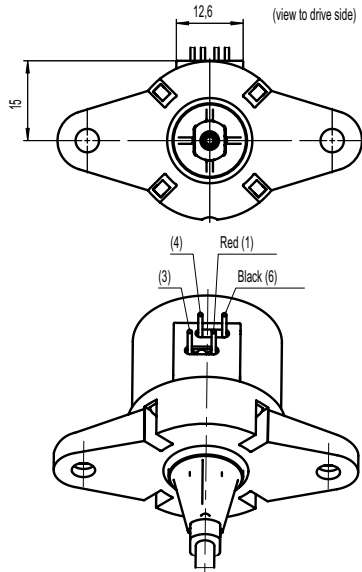
shaft 1B= cost effective solutions for forces up to 25N

## Version with Connector D, with 50..150 mm travel, shaft 1R, 1S, 1Q



shaft	A	B
1Q	150 mm	186 mm
1R	100 mm	136 mm
1S	50 mm	86 mm

## Dimensions 110 V version with lead wires



different lead colours for 110V (230V)  
for rotary synchronous motors in series circuit

### Force

		connector version		lead wire version	
		50 Hz	60 Hz	50 Hz	60 Hz
UCC1	100 %	33 N	35 N	26 N	29 N
	30 %	39 N	41 N	31 N	34 N
UCC7	100 %	39 N	41 N	32 N	35 N
	30 %	47 N	48 N	38 N	42 N

## UCK 1/7

Dimensions (mm)	∅ 28 x 31
Travel (mm)	10/13
Voltage (V) **	12–230
Speed (mm/s)	
50 Hz	8.33
60 Hz	10
Max. Force (N)*	49



\* Depends on winding, frequency and lifetime required. Values for connector versions (C, D) / lead wire versions (N) up to 20 % lower.  
Drive against end stops only permissible after clarification of operating conditions and approval by Saia motors.  
Radial forces on the shaft will reduce life time and performance.

\*\* regard circuit diagram and connector type

Note: All force 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
Winding coil temperature increase	K 60
Approval	standard
Mounting	any position
Electrical connection	connector type C, D, N
Protection	IP40 according to DIN EN 60529 : 2014
Weight	67 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	ball bearing

## Order Reference

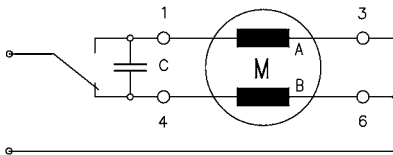
Type	Synchronous Motor	UCK	13	N	B4	D	1B
Configuration	13 standard magnet	73 stronger magnet					
Approval	N						
Voltage/frequency	see next page						
Connection	C see next pages "Connection Types" and page 145 "Connection Types" for B						
Shaft	1B Travel 13 mm ± 0.7 mm (other standard shafts see under dimensions)						

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)

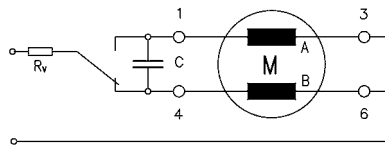
## Technical Data

Rated frequency	Hz	50		
Speed	mm/s	8.33		
Tolerance of voltage		standard power supply system +10% / -10%		
Axial play at 20 N force	mm	< 0.25		
Duty cycle		100 %		
Winding temperature $T_{max}$		130		
Rated voltage $U_N$	V	12	24	110 <sup>1)</sup>
Duty cycle	%	100	100	100
Resistance $R_{20}$	$\Omega$	59	230	5500
Capacitor $C_{50}$	$\mu F / V \pm 10\%$	22/20	5.6/40	0.27/200
Winding code		B1	B4	C8/H8

Circuit diagram Parallel circuit 12 V, 24 V, 48 V



Parallel circuit 230 V (only for connector N) with 110 V motor and resistor  $R_V$

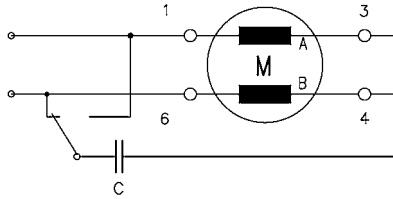


$R_V = 5.6 \text{ k}\Omega, 3 \text{ W}$

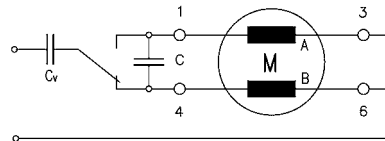
switch to

- 1 Pull (in)
- 4 Push (out)
- 6 Push (out) (for series circuit)

Series circuit 110 V (only for connector N)



Parallel circuit 230 V (only for connector N) with 110 V motor and capacitor  $C_V$

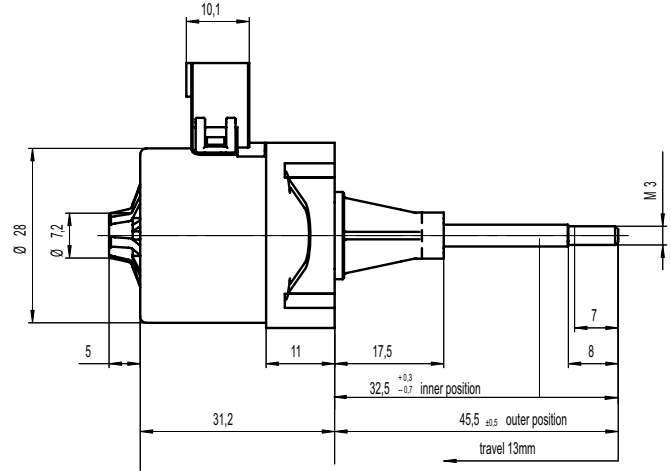
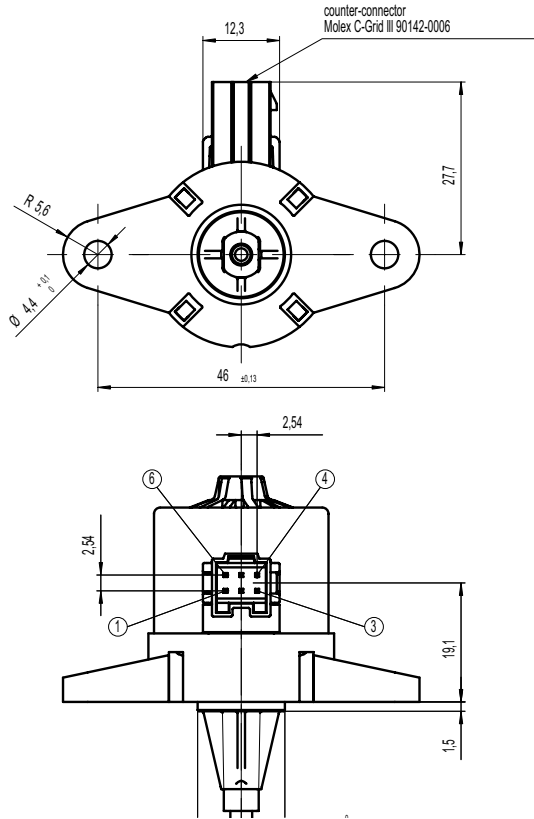


$C_V = 0.33 \mu F, 250 \text{ VAC}$

<sup>1)</sup> 110 V version available with 150 mm lead wires AWG26 only  
Standard versions:

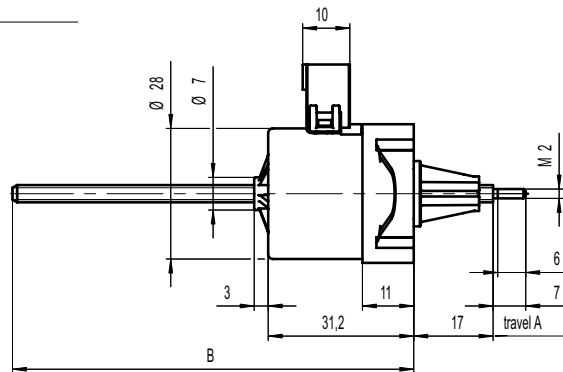
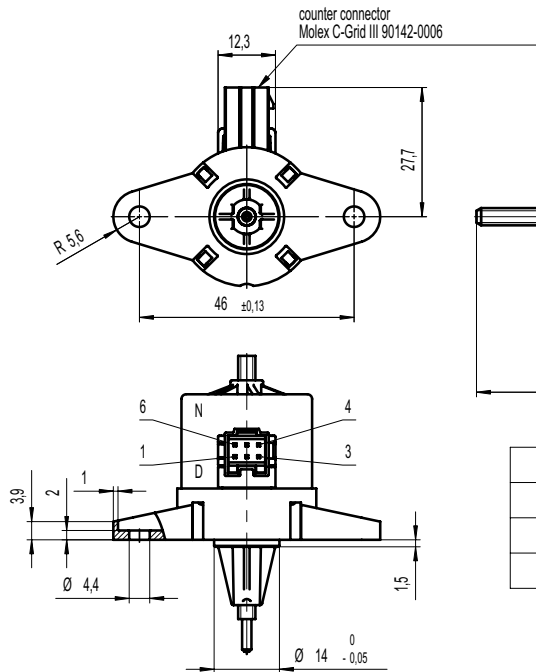
Shaft type (see dimensions)	Order code
1B	UCK13NC8N1BZ2
1E	UCK13NC8N1EZ2
1S	UCK13NC8N1SZ2
1R	UCK13NC8N1RZ2
1Q	UCK13NC8N1QZ2

## Dimensions Version with Connector D, with 13 mm travel, shaft 1B and 1E



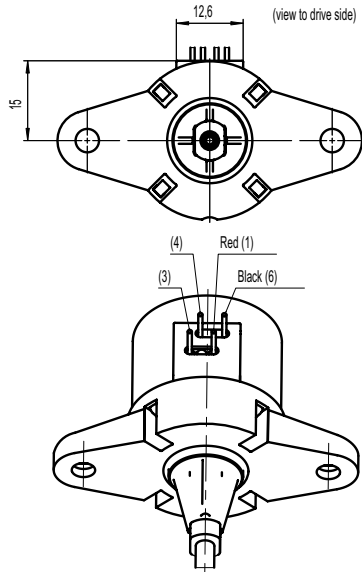
shaft 1B= cost effective solutions for forces up to 25N

## Version with Connector D, with 50..150 mm travel, shaft 1R, 1S, 1Q



shaft	A	B
1Q	150 mm	186 mm
1R	100 mm	136 mm
1S	50 mm	86 mm

## Dimensions 110 V version with lead wires



different lead colours for 110V (230V)  
for rotary synchronous motors in series circuit

### Force

		connector version		lead wire version	
		50 Hz	60 Hz	50 Hz	60 Hz
UCK1	100 %	27 N	28 N	19 N	19 N
	30 %	35 N	41 N	24 N	26 N
UCK7	100 %	34 N	33 N	22 N	21 N
	30 %	44 N	49 N	29 N	30 N



# Stepper Motors Linear



**Dimensions**

connector for Molex  
C-Grid III 90142-0006

**Circuit diagram**

	I	II	III	IV	I
d	+	+	-	-	+
c	-	-	+	+	-
a	+	+	-	-	+
b	-	-	+	+	-

d-c-a-b-a-a-

← Pull in (step I to IV, I to IV, etc.)  
→ Push out (step IV to I, step IV to I, etc.)

## UAL 1/5; UAL 2

Dimensions (mm)	20 x 30
Travel (mm)	15
Travel per step (mm)	0,021
Thread pitch (mm)	0,5
Speed (mm/s) at 200 Hz	4,16
Step angle (°)	15
Max. Force (N)*	40



\*Depends on winding, frequency and lifetime required.

Drive against end stops only permissible after clarification of operating conditions and approval by Saia Motor.  
Radial forces on the shaft will reduce life time and performance.

Note: All force 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>them</sub>	47 K/W
Thermal class	130 (B) according to DIN EN 60085 : 2008
Approval	standard
Mounting	any position
Electrical connection	lead wire with CT connector
Protection	IP40 according to DIN EN 60529 : 2014
Weight	33 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	ball bearing

## Order Reference

Type	Stepper Motor	UAL	1E	N	01	E	1A
Configuration	1A bipolar, standard magnet, screw flange 1E bipolar, standard magnet, bayonet flange 2A unipolar, standard magnet, screw flange 2E unipolar, standard magnet, bayonet flange 5A bipolar, stronger magnet, screw flange 5E bipolar, stronger magnet, bayonet flange						
Approval	N standard						
Winding code	see next page, resistance per winding for bipolar or unipolar						
Connection	E 100 mm lead wire with CT connector						
Shaft	1A Travel 15 mm ± 0,7 mm (others 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

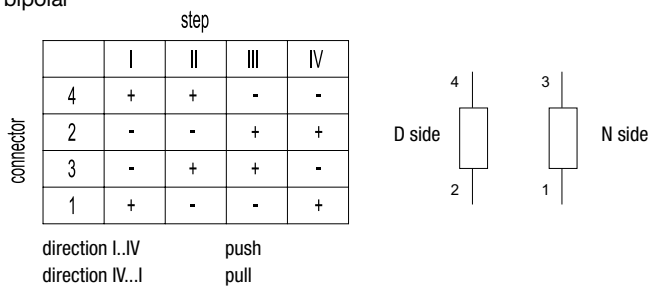
Steps per mm		48
Winding temperature $T_{max}$	°C	130
Linear travel max.	mm	15
Axial play at 20 N force	mm	0,25

unipolar versions available upon request

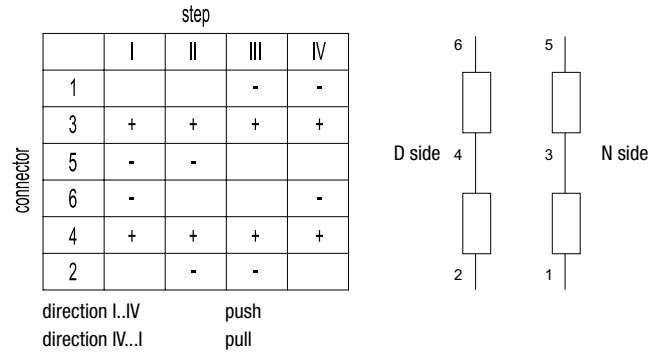
bipolar	Rated voltage $U_N$	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	40	150	610
	Winding code		03	01	04

\* measured at 23 °C, lifetime depends on load characteristics and ambient conditions

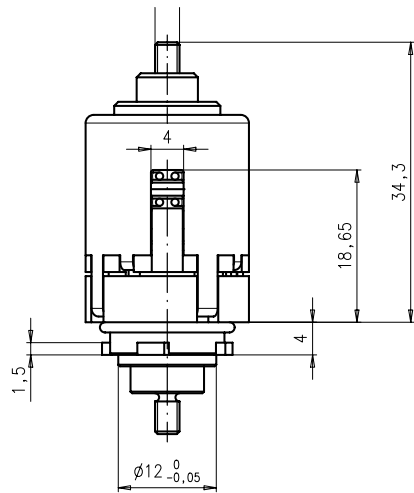
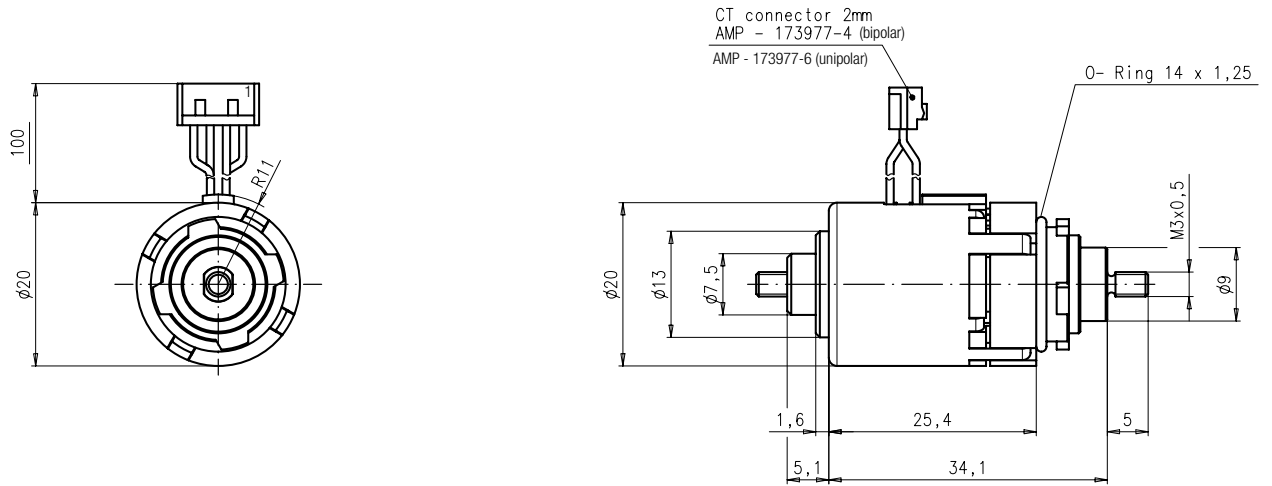
Circuit diagram bipolar



unipolar

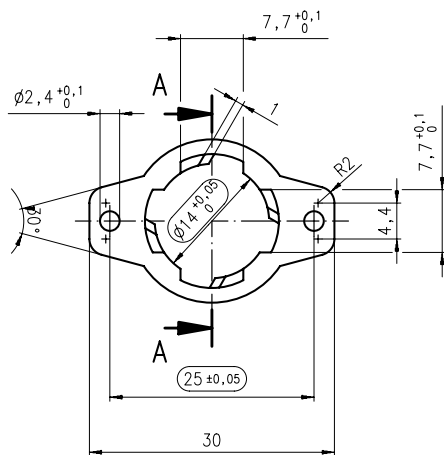
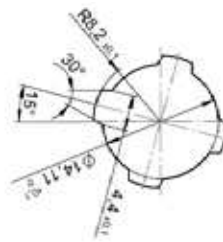


Dimensions Version with 100 mm leads and CT connector, 15 mm travel

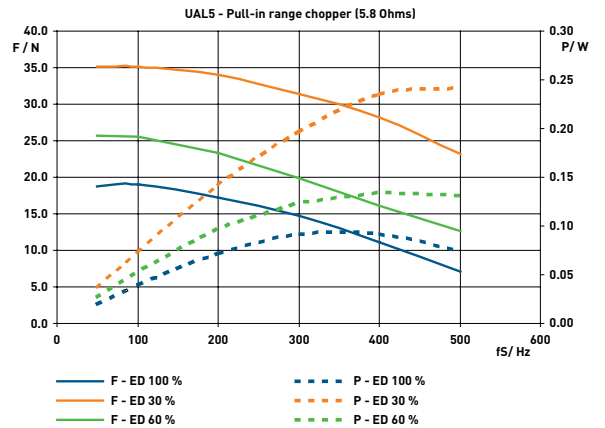
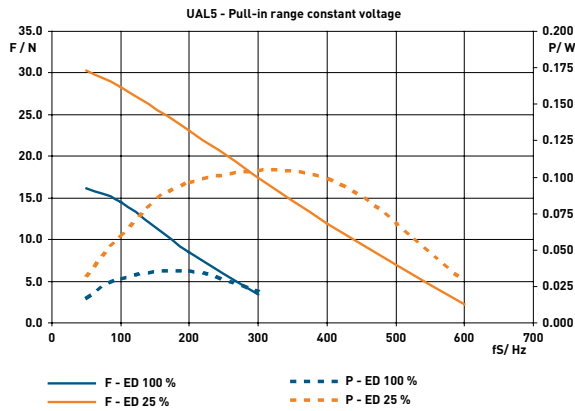
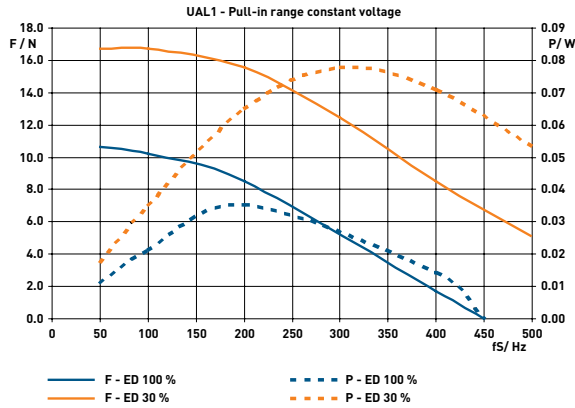


Connecting dimensions of direct bayonet mount

Material thickness 1,5 mm



## Performance Chart



100% duty cycle: max. current per phase 300 mA  
 60% duty cycle: max. current per phase 360 mA  
 30% duty cycle: max. current per phase 500 mA

## UCE1/7; UCE2/8

Dimensions (mm)	∅ 28 x 31
Travel (mm)	10/13
Travel per step (mm)	0.021
Speed (mm/s) at 200 Hz	4.16
Max. Force (N)*	80



\*Depends on winding, frequency and lifetime required.  
 Drive against end stops only permissible after clarification of operating conditions and approval by Saia Motors.  
 Radial forces on the shaft will reduce life time and performance.  
 Note: All force 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 C, D
Protection	IP40 according to DIN EN 60529 : 2014
Weight	67 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	ball bearing

## Order Reference

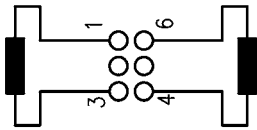
Type	Stepper Motor	UCE	13	N	01	D	1B
Configuration	13 bipolar, standard magnet	73 bipolar, stronger magnet					
	23 unipolar, standard magnet	83 unipolar, stronger magnet					
Approval	N						
Resistance	see next page, Resistance per winding for bipolar or unipolar						
Connection	C see next pages "Connection Types" and page 145 "Connection Types" for B						
	D						
Shaft	1B Travel 13 mm ± 0.7 mm (other standard shafts see under dimensions)						

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 Please also read "Saia Motors Important Notes" on catalog or at [www.johnsonelectric.com/SaiaMotorsNotes](http://www.johnsonelectric.com/SaiaMotorsNotes)

## Technical Data

bipolar	Rated voltage $U_N$ :	V	6	12	24
	Resistance per winding $R_{20}$	$\Omega$	24	90	380
Travel per step		mm	0.021		
Winding temperature $T_{max}$		$^{\circ}C$	130		
Axial play at $\pm 20$ N force		mm	< 0.25		

Circuit diagram bipolar

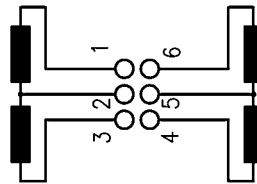


stepping sequence number

	I	II	III	IV	I
1	+	+	-	-	+
3	-	-	+	+	-
4	-	+	+	-	-
6	+	-	-	+	+

Pull in (step I to IV, I to IV, etc.)  
 Push out (step IV to I, step IV to I, etc.)

unipolar

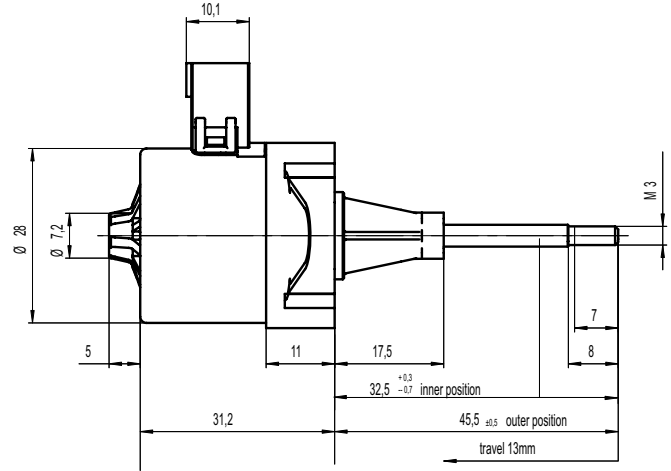
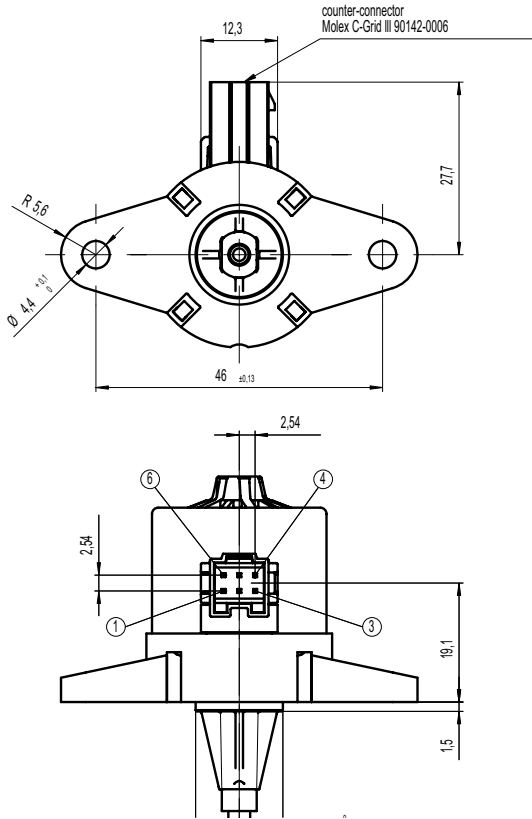


stepping sequence number

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

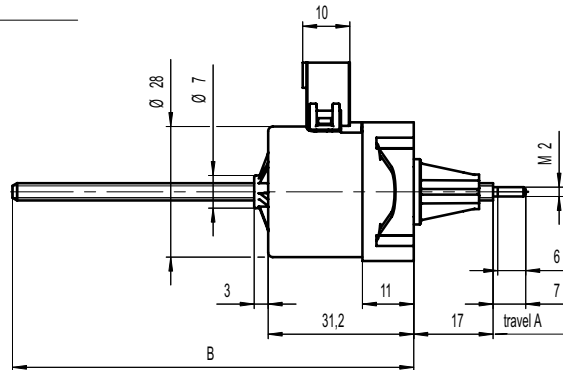
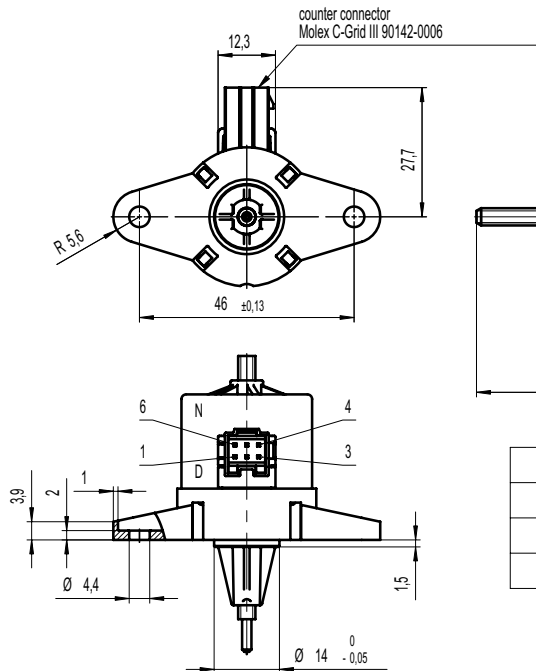
Pull in (step I to IV, I to IV, etc.)  
 Push out (step IV to I, step IV to I, etc.)

## Dimensions



shaft 1B= cost effective solutions for forces up to 25N

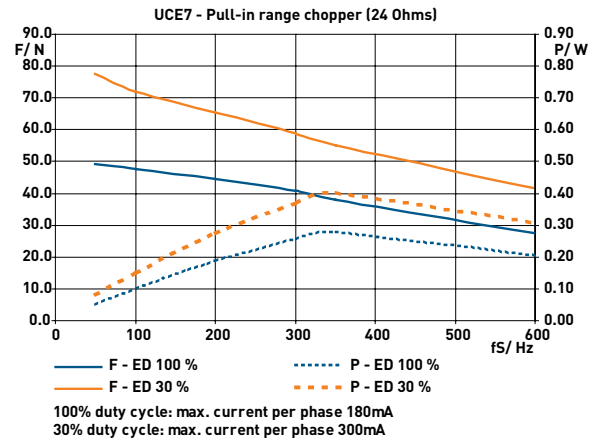
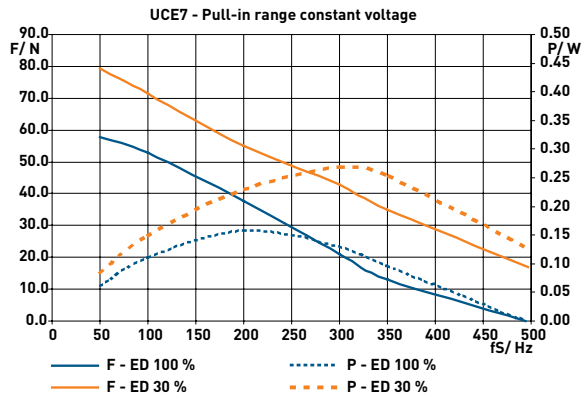
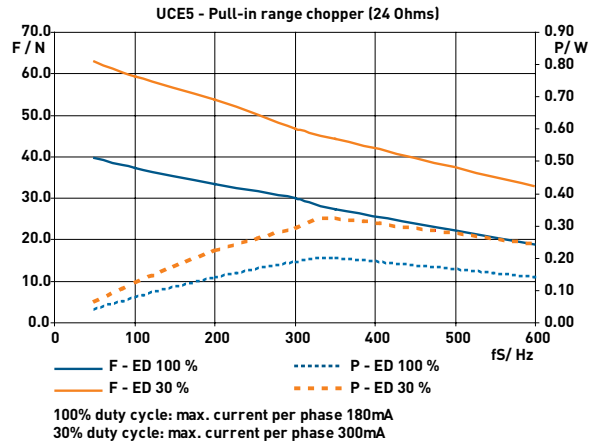
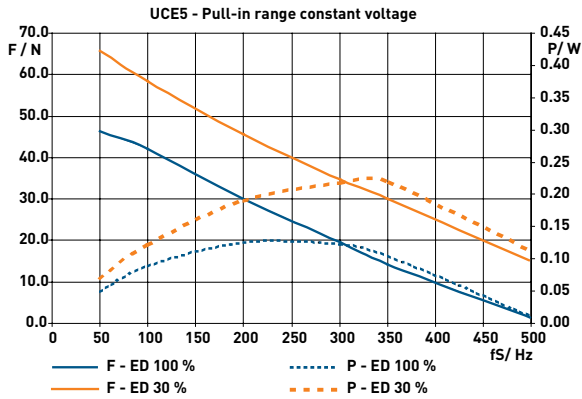
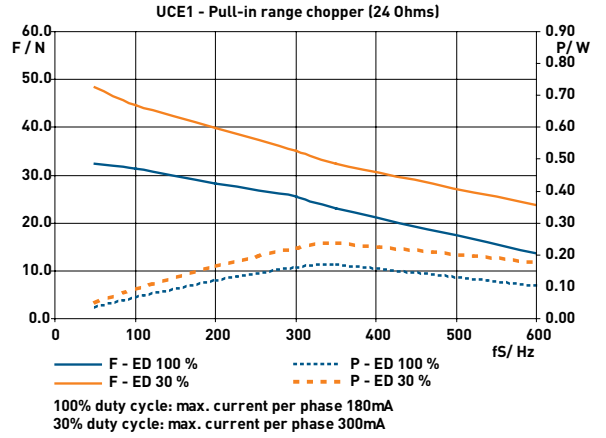
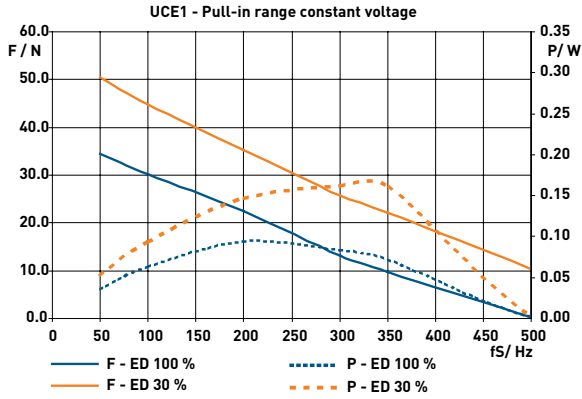
Version with Connector D, with 50..150 mm travel, shaft 1R, 1S, 1Q



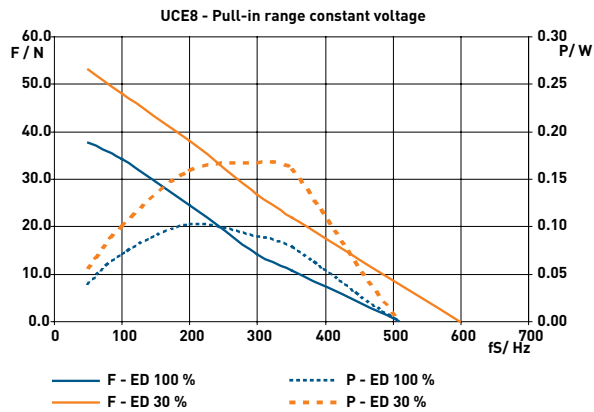
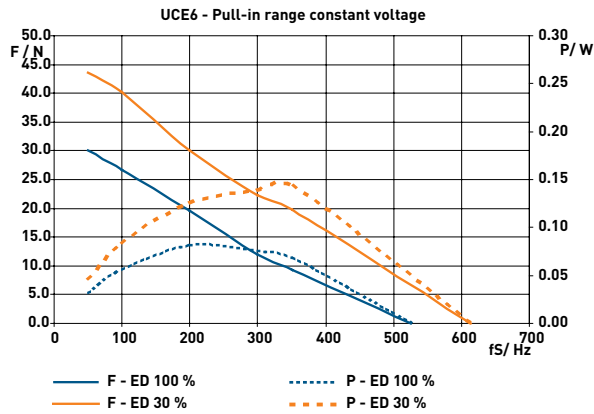
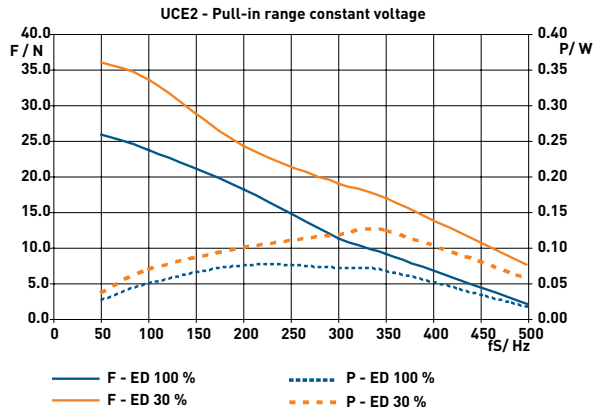
shaft	A	B
1Q	150 mm	186 mm
1R	100 mm	136 mm
1S	50 mm	86 mm



## Performance Chart



## Performance Chart



## UCL1/7; UCL2/8

Dimensions (mm)	∅ 28 x 31
Travel (mm)	10/13
Travel per step (mm)	0.041
Speed (mm/s) at 200 Hz	8.33
Max. Force (N)*	70



\*Depends on winding, frequency and lifetime required.  
 Drive against end stops only permissible after clarification of operating conditions and approval by Saia Motors.  
 Radial forces on the shaft will reduce life time and performance.  
 Note: All force 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 C, D
Protection	IP40 according to DIN EN 60529 : 2014
Weight	67 g
Rotor stalling	motor can be stopped when voltage is applied, without being overheated
Bearings	ball bearing

## Order Reference

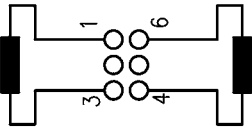
Type	Stepper Motor				UCL	13	N	01	D	1B
Configuration	13	bipolar, standard magnet	73	bipolar, stronger magnet						
	23	unipolar, standard magnet	83	unipolar, stronger magnet						
Approval	N									
Resistance	see next page, Resistance per winding for bipolar or unipolar									
Connection	C	see pages 151, „Connection Types“								
	D									
Shaft	1B	Travel 13 mm ± 0.7 mm (other standard shafts see under dimensions)								

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	Rated voltage $U_N$ :	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	24	90	380
	Winding code		05	02	01
unipolar	Rated voltage $U_N$ :	V	6	12	24
	Duty cycle	%	100	100	100
	Resistance $R_{20}$	$\Omega$	24	90	380
	Winding code		07	08	01
Travel per step		mm	0.042		
Winding temperature $T_{max}$		$^{\circ}\text{C}$	130		
Axial play at $\pm 20$ N force		mm	< 0.25		

Circuit diagram bipolar

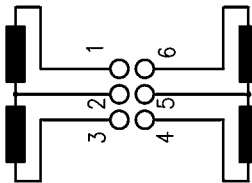


stepping sequence number

	I	II	III	IV	I
pin number 1	+	+	-	-	+
pin number 3	-	-	+	+	-
pin number 4	-	+	+	-	-
pin number 6	+	-	-	+	+

Pull in (step I to IV, I to IV, etc.)  
 Push out (step IV to I, step IV to I, etc.)

unipolar

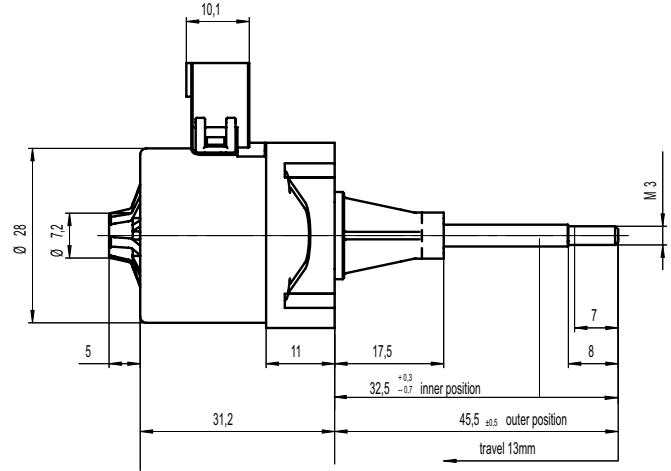
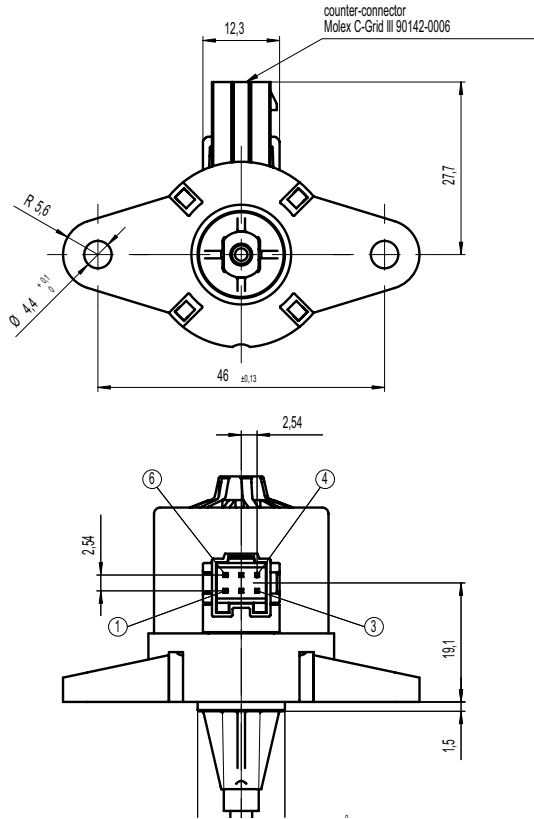


stepping sequence number

	I	II	III	IV	I
pin number 1	-	-			-
pin number 2	+	+	+	+	+
pin number 3			-	-	
pin number 4		-	-		
pin number 5	+	+	+	+	+
pin number 6	-			-	-

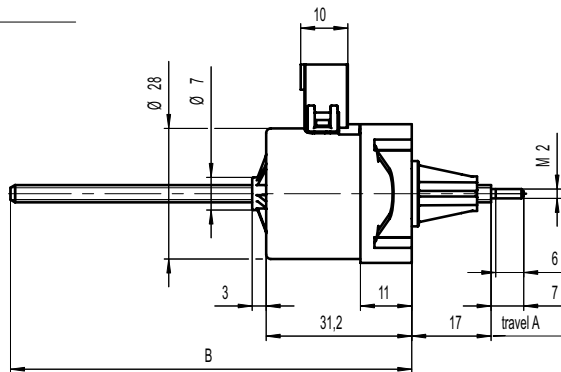
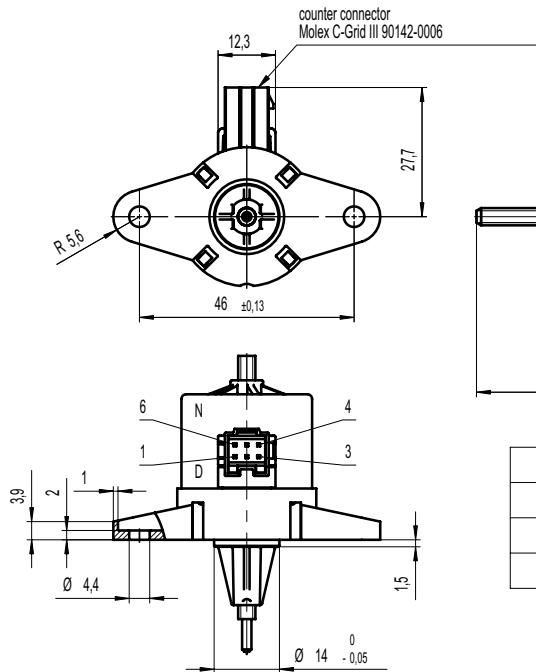
Pull in (step I to IV, I to IV, etc.)  
 Push out (step IV to I, step IV to I, etc.)

## Dimensions Version with Connector D, with 13 mm travel, shaft 1B and 1E



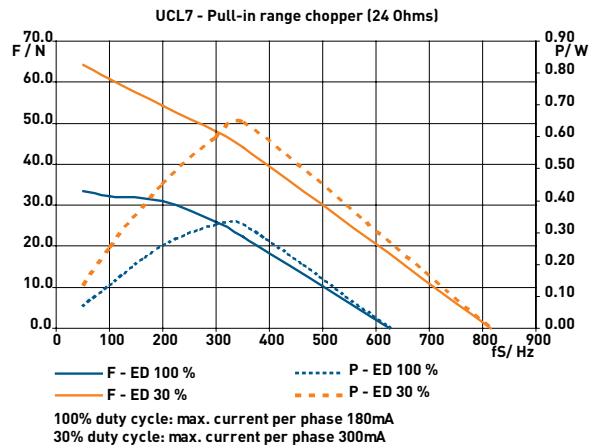
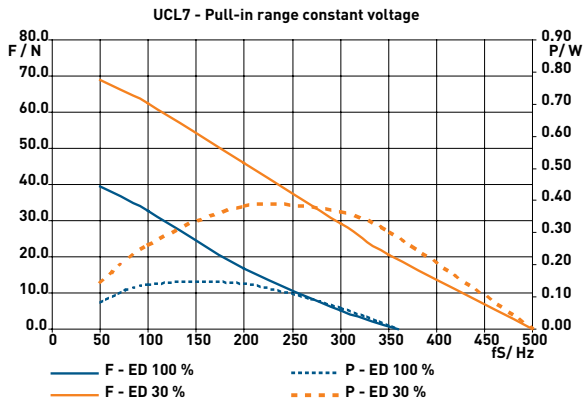
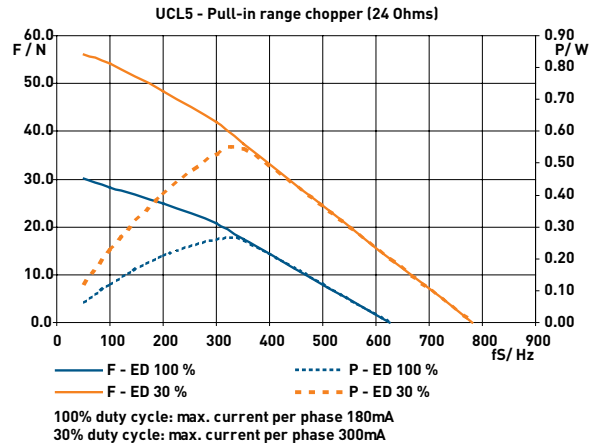
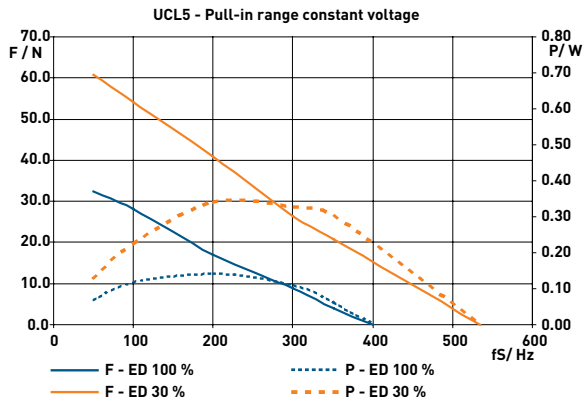
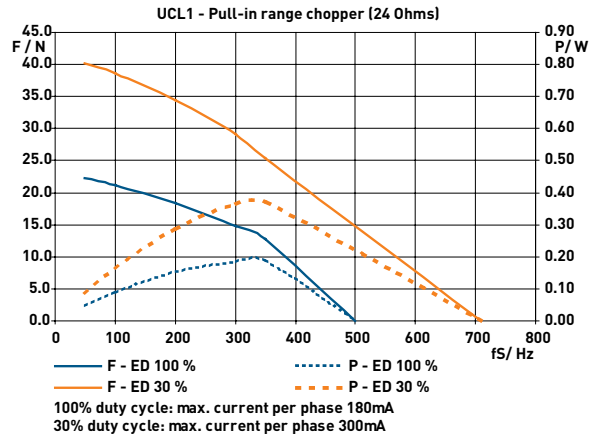
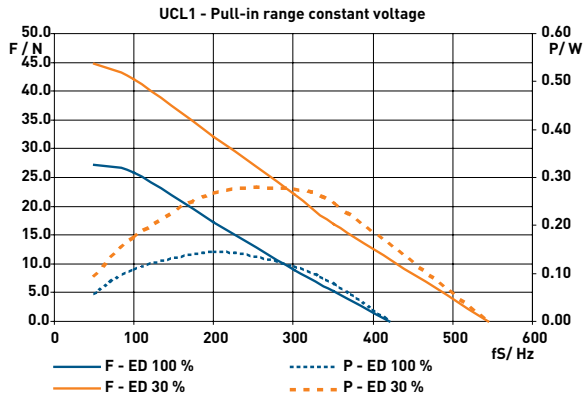
shaft 1B= cost effective solutions for forces up to 25N

## Version with Connector D, with 50..150 mm travel, shaft 1R, 1S, 1Q

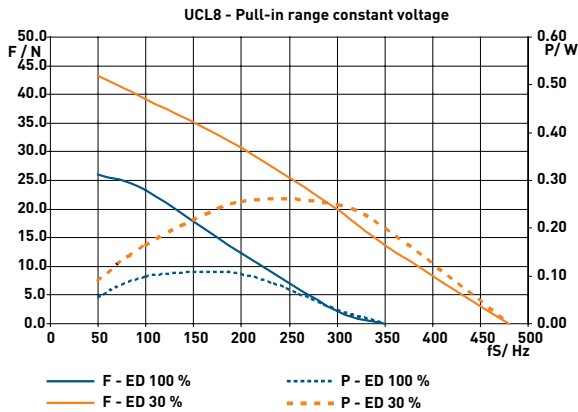
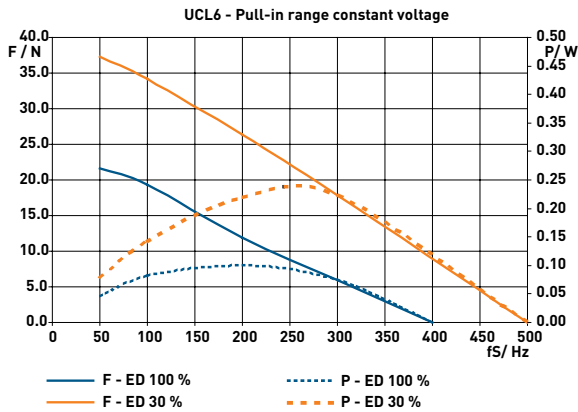
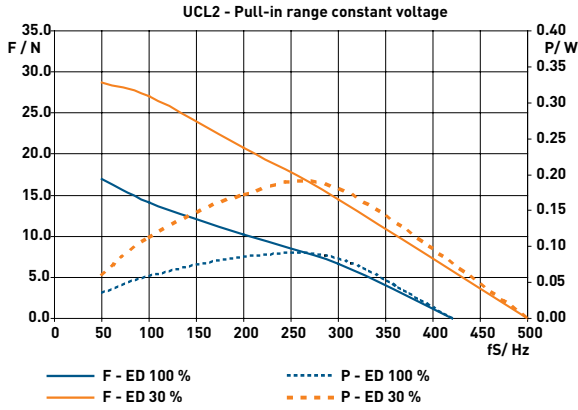


shaft	A	B
1Q	150 mm	186 mm
1R	100 mm	136 mm
1S	50 mm	86 mm

## Performance Chart

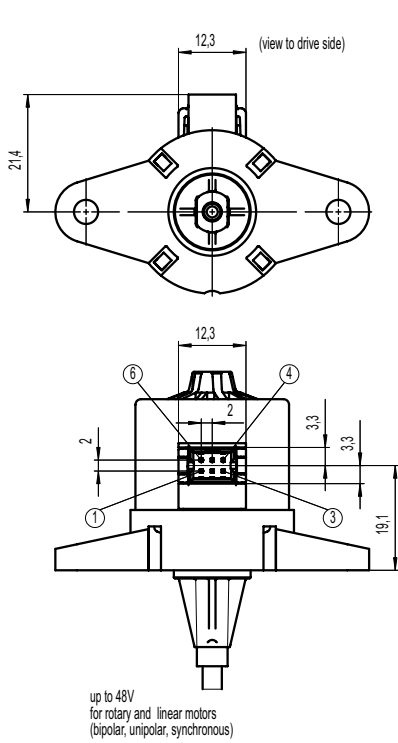


## Performance Chart

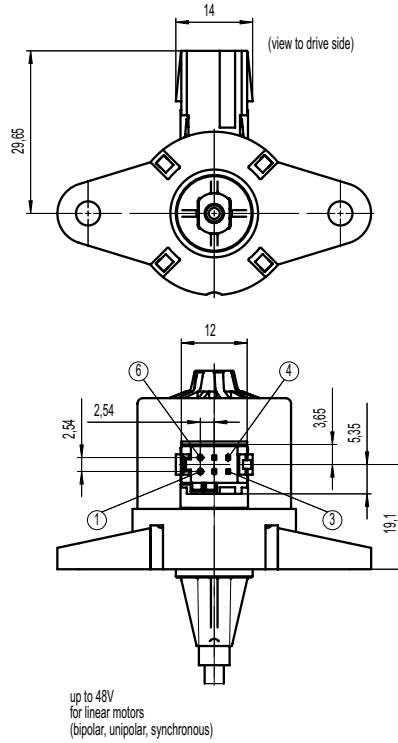


# Connection Types UC motors

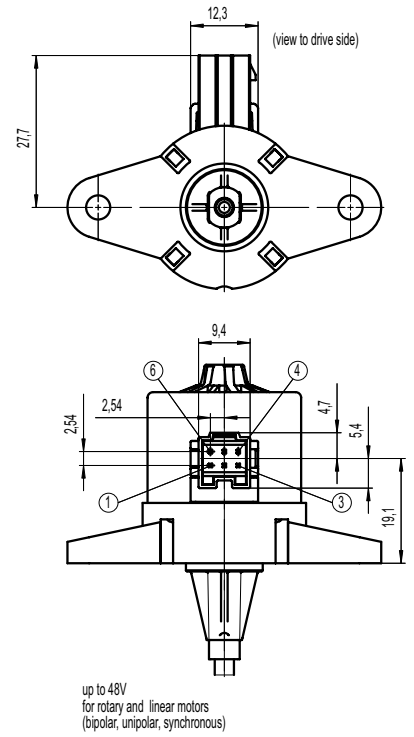
**Connector B**  
for Molex Mini-Grid 51110-0660



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

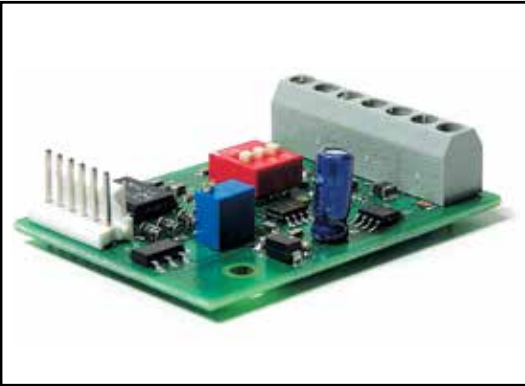


**Connector D**  
for Molex C-Grid III 90142-0005

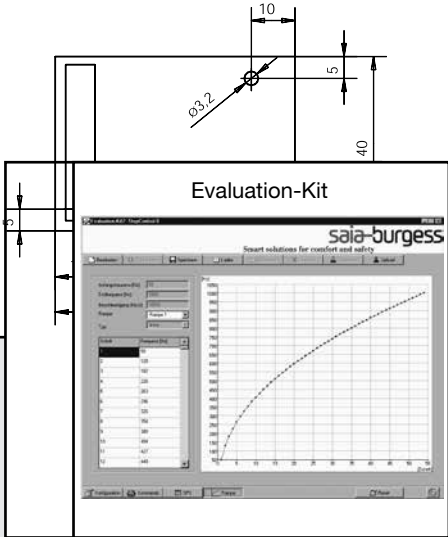




# Electronics for Stepper Motors



Dimensions



## SAMOTRONIC101



Driver	for unipolar motors
Dimensions (mm)	55 x 40
Supply voltage (VDC)	10-24
Motor current	constant voltage drive
Step mode	full/half step
Clock source	internal or external
Control inputs to	<ul style="list-style-type: none"> <li>■ inhibit internal clock</li> <li>■ inhibit motor current</li> <li>■ change direction of rotations</li> </ul>
Configuration	via DIP-switch, potentiometer

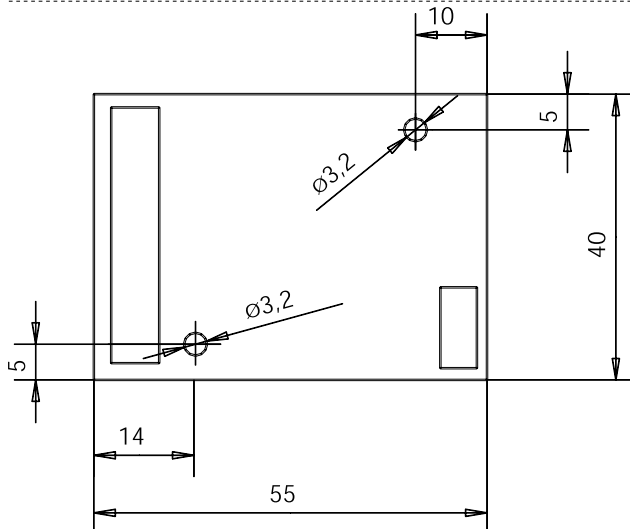
## Preferred Range

Ordering Reference	
4 636 6608 0	If motors are also to be ordered please state: "with MTA-100 receptacles for use with SAMOTRONIC101".
4 636 6608 3	with screw terminal for motor connection, max 0.5 mm <sup>2</sup>

## Technical Data

Supply voltage	10-24 VDC
Phase current	≤ 350 mA
Control signal level	LS-TTL (0-5V) for all control inputs
Internal clock	50-360 Hz
External clock	up to 2 kHz
Dimensions	55 x 40 mm
Operating temperature	-5 to +50 °C
Storage temperature	-20 to +70 °C

Dimensions



For latest technical and safety compliance information regarding these products, please download the relevant data sheet from our web site: [www.saia-burgess.com/drivers](http://www.saia-burgess.com/drivers)

*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)*

## SAMOTRONIC102



Driver	for bipolar motors
Dimensions (mm)	84 x 54
Supply voltage (VDC)	<ul style="list-style-type: none"> <li>■ standard version 10 DC-24</li> <li>■ enhanced version 10 DC-42</li> </ul>
Motor current	<ul style="list-style-type: none"> <li>■ constant current drive (chopper controlled)</li> <li>■ adjustable via potentiometer</li> </ul>
Step mode	full/half step
Clock source	internal or external
Control inputs to	<ul style="list-style-type: none"> <li>■ inhibit internal clock</li> <li>■ inhibit motor current</li> <li>■ change direction of rotations</li> </ul>
Configuration	via DIP-switch, potentiometer
Test pins	<ul style="list-style-type: none"> <li>■ motor current</li> <li>■ step frequency</li> </ul>

## Preferred Range

### Ordering Reference

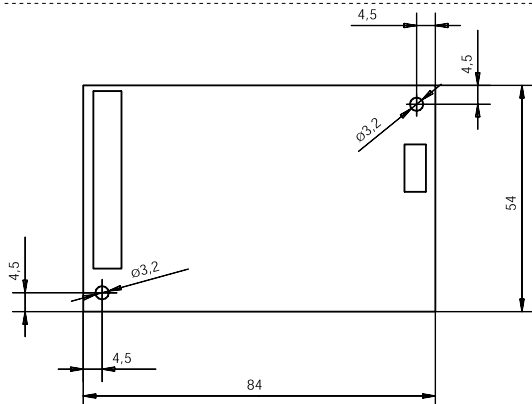
- 4 636 6733 0 10-24VDC supply voltage (standard version)
- 4 636 6733 3 10-42VDC supply voltage (enhanced version)

If motors are also to be ordered please state: "with MTA-100 receptacles for use with SAMOTRONIC102".

## Technical Data

Supply voltage	10-24 (42)VDC
Phase current	71-500 mA, on request max. 735mA/ph
Chopper frequency	typ. 20kHz
Control signal level	LS-TTL (0-5V) for all control inputs
Internal clock	50-1325 Hz
External clock	up to 2 kHz
Dimensions	84 x 54 mm
Operating temperature	-20 to +60 °C
Storage temperature	-20 to +80 °C

### Dimensions



For latest technical and safety compliance information regarding these products, please download the relevant data sheet from our web site: [www.saia-burgess.com/drivers](http://www.saia-burgess.com/drivers)

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# Evaluation-Kit 2

## Evaluation-Kit 2

Driver	for unipolar and bipolar motors
Dimensions (mm)	metal case 164 x 130 x 45
Motor voltage (VDC)	3-48 Unipolar motors
(VAC)	8-48 Bipolar motors (< 8 on request)
Motor current	constant voltage drive and constant current drive (chopper controlled)
Step mode	full/half/micro step
Clock source	internal, programmable
Control inputs to	<ul style="list-style-type: none"><li>■ 3 digital inputs</li><li>■ 4 signal outputs</li><li>■ 1 analog input 0...10 VDC</li><li>■ relay contact</li></ul>
Configuration	RS 232, USB



## Order Reference

4 717 4898 0

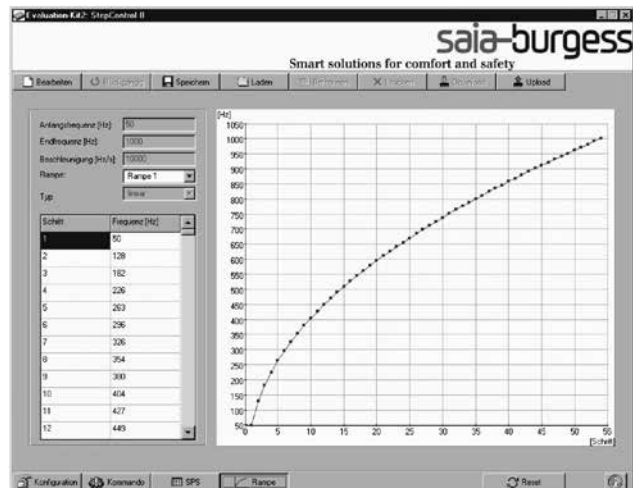
Power supply (on request)

## Technical Data

Supply voltage	10-48 VDC/24 VAC
Phase current	≤ up to 2.3 A
Step modes	11 (full, half, wave ... microstep)
Max. step frequency	10 kHz
PLC	max. 256 steps, 65536 loops
Operating temperature	0 ... +55 °C
Storage temperature	-20 to +80 °C

Test the Stepconf software without hardware in a special demo mode ([www.saia-burgess.com/evaluationkit2](http://www.saia-burgess.com/evaluationkit2)).

For further information please contact your Saia-Burgess sales company or see our website [www.saia-burgess.com](http://www.saia-burgess.com).



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)

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