



## **BRUSHED DC SPUR GEAR MOTORS** | 3 - 24 V 34 - 690 mNm

We offer a broad range of high quality brushed DC spur gear motors in standard and customized configurations. Our customer-centric approach makes us the ideal supplier for your project, especially to instrument and apparatus builders. In addition, we offer immediate delivery, thanks to always having a high number of motors in stock.

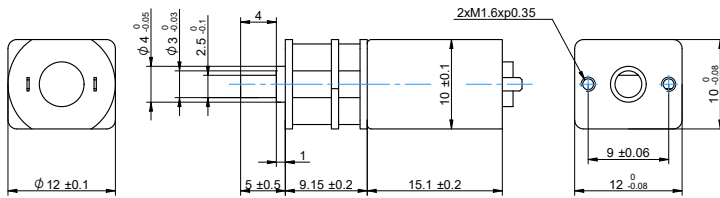
### **Customizations include:**

- ✓ Customized harness
- ✓ Winding configuration
- ✓ Shaft configuration
- ✓ And more...

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DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDS1215 - VOLTAGE - GEAR RATIO - F E

Example: SDS1215-3-10-FE

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

		10:1	19:1	29:1	60:1	76:1	102:1	134:1	197:1	235:1	298:1
Gear ratio		10:1	19:1	29:1	60:1	76:1	102:1	134:1	197:1	235:1	298:1
Nominal torque   ^ gearbox limit	mNm	1.5	2.5	3.9	7.4	9.8	12	15	23	27	34
Nominal speed	rpm	1400	720	480	230	180	135	100	70	59	46
Peak torque	mNm	59	88	88	150	150	240	240	290	290	290
Nominal power	W	0.22	0.19	0.19	0.18	0.18	0.17	0.16	0.16	0.16	0.16
Gearbox efficiency	%	81	73	73	66	66	66	59	59	59	59
Gearbox length   L	mm	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15
Weight	g	11	11	11	11	11	11	11	11	11	11

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

GEARBOX DATA

Backlash no load	°	≤ 1.5	
Radial load	N	≤ 3.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.06	
Thrust play	mm	≤ 0.2	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	0.8	

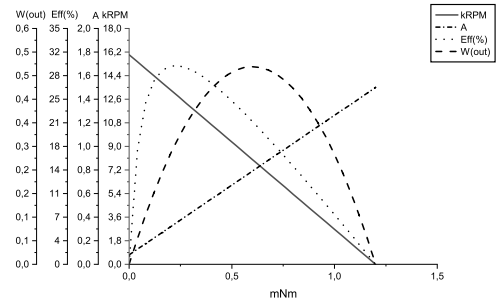
MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

BRUSHED DC MOTOR DATA

Nominal voltage	V	3
No load speed	rpm	16000
No load current	mA	≤ 80
Nominal speed	rpm	14000
Nominal torque	mNm	0.29
Nominal current	mA	≤ 250
Nominal power	W	0.29
Stall torque	mNm	1.2
Starting current	A	1.5
Motor commutation		Prec.m. <sup>3</sup>
Motor rotor		Iron
Motor stator		Neody. <sup>4</sup>
Varistor EMC	V	6 - 9
Capacitor EMC	V	None
Resistance	Ω	2.8
Inductance	mH	0.52
Insulation class		B

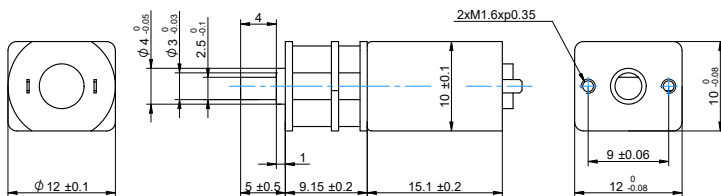
BRUSHED DC MOTOR DATA GRAPH



NOTES

- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Neodymium.

## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SDS1215 - VOLTAGE - GEAR RATIO - F E

Example: SDS1215-6-10-FE

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

## GEAR MOTOR DATA

		10:1	19:1	29:1	60:1	76:1	102:1	134:1	197:1	235:1	298:1
Gear ratio		10:1	19:1	29:1	60:1	76:1	102:1	134:1	197:1	235:1	298:1
Nominal torque   ^ gearbox limit	mNm	2.4	3.9	5.9	11	15	20	23	34	40	51
Nominal speed	rpm	1500	770	510	250	200	150	110	75	63	50
Peak torque	mNm	59	88	88	150	150	240	240	290	290	290
Nominal power	W	0.38	0.32	0.32	0.29	0.29	0.29	0.26	0.26	0.26	0.26
Gearbox efficiency	%	81	73	73	66	66	66	59	59	59	59
Gearbox length   L	mm	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15
Weight	g	11	11	11	11	11	11	11	11	11	11

## OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

## GEARBOX DATA

Backlash no load	°	≤ 1.5	
Radial load	N	≤ 3.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.06	
Thrust play	mm	≤ 0.2	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	0.8	

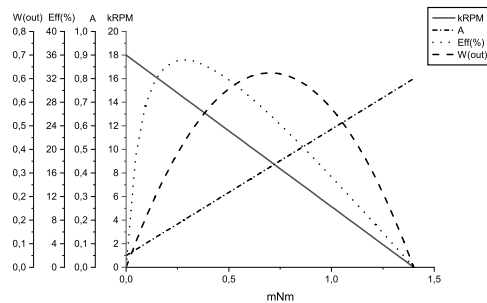
## MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

## BRUSHED DC MOTOR DATA

Nominal voltage	V	6
No load speed	rpm	18000
No load current	mA	≤ 50
Nominal speed	rpm	15000
Nominal torque	mNm	0.39
Nominal current	mA	≤ 170
Nominal power	W	0.46
Stall torque	mNm	1.4
Starting current	A	0.8
Motor commutation		Prec.m. <sup>3</sup>
Motor rotor		Iron
Motor stator		Neody. <sup>4</sup>
Varistor EMC	V	9 - 14
Capacitor EMC	V	None
Resistance	Ω	11
Inductance	mH	1.7
Insulation class		B

## BRUSHED DC MOTOR DATA GRAPH

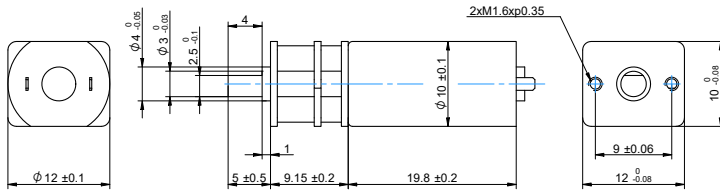


## NOTES

- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Neodymium.



DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDS1220 - VOLTAGE - GEAR RATIO - F E

Example: SDS1220-3-10-FE

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

		10:1	19:1	29:1	60:1	76:1	102:1	134:1	197:1	235:1	298:1
Gear ratio		10:1	19:1	29:1	60:1	76:1	102:1	134:1	197:1	235:1	298:1
Nominal torque   ^ gearbox limit	mNm	2.4	3.9	5.9	11	15	20	23	34	41	52
Nominal speed	rpm	1300	700	460	230	175	130	100	68	47	45
Peak torque	mNm	59	88	88	150	150	240	240	290	290	290
Nominal power	W	0.33	0.29	0.28	0.26	0.26	0.26	0.24	0.24	0.24	0.24
Gearbox efficiency	%	81	73	73	66	66	66	59	59	59	59
Gearbox length   L	mm	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15
Weight	g	12	12	12	12	12	12	12	12	12	12

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

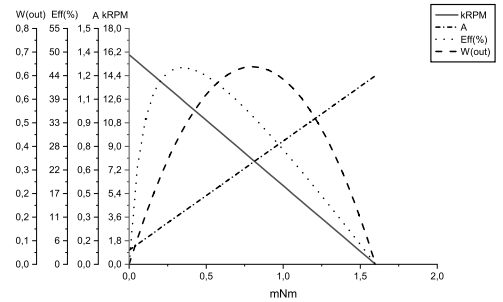
GEARBOX DATA

Backlash no load	°	≤ 1.5	
Radial load	N	≤ 3.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.06	
Thrust play	mm	≤ 0.2	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	0.8	

BRUSHED DC MOTOR DATA

Nominal voltage	V	3
No load speed	rpm	16000
No load current	mA	≤ 90
Nominal speed	rpm	14000
Nominal torque	mNm	0.29
Nominal current	mA	≤ 310
Nominal power	W	0.41
Stall torque	mNm	1.6
Starting current	A	1.2
Motor commutation		Prec.m. <sup>3</sup>
Motor rotor		Iron
Motor stator		Neody. <sup>4</sup>
Varistor EMC	V	6 - 9
Capacitor EMC	V	None
Resistance	Ω	1.4
Inductance	mH	0.24
Insulation class		B

BRUSHED DC MOTOR DATA GRAPH



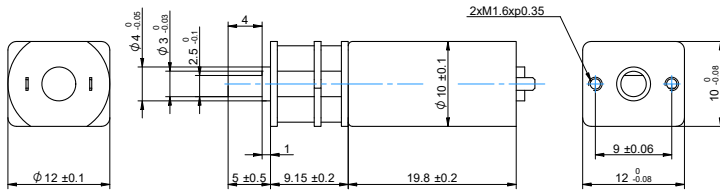
NOTES

- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Neodymium.

MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDS1220 - VOLTAGE - GEAR RATIO - F E

Example: SDS1220-6-10-FE

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

		10:1	19:1	29:1	60:1	76:1	102:1	134:1	197:1	235:1	298:1
Gear ratio		10:1	19:1	29:1	60:1	76:1	102:1	134:1	197:1	235:1	298:1
Nominal torque   ^ gearbox limit	mNm	2.9	5.4	7.8	15	20	27	29	45	52	69
Nominal speed	rpm	1500	780	510	250	200	150	110	76	64	50
Peak torque	mNm	59	88	88	150	150	240	240	290	290	290
Nominal power	W	0.46	0.44	0.42	0.39	0.39	0.39	0.33	0.33	0.33	0.33
Gearbox efficiency	%	81	73	73	66	66	66	59	59	59	59
Gearbox length   L	mm	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15	9.15
Weight	g	12	12	12	12	12	12	12	12	12	12

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

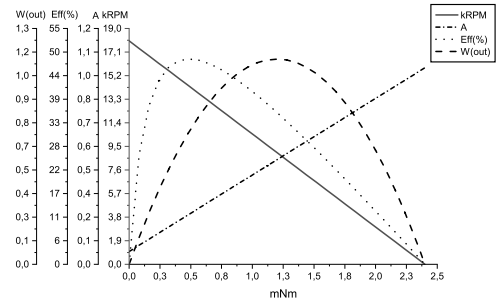
GEARBOX DATA

Backlash no load	°	≤ 1.5	
Radial load	N	≤ 3.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.06	
Thrust play	mm	≤ 0.2	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	0.8	

BRUSHED DC MOTOR DATA

Nominal voltage	V	6
No load speed	rpm	18000
No load current	mA	≤ 65
Nominal speed	rpm	15000
Nominal torque	mNm	0.39
Nominal current	mA	≤ 250
Nominal power	W	0.61
Stall torque	mNm	2.4
Starting current	A	1
Motor commutation		Prec.m. <sup>3</sup>
Motor rotor		Iron
Motor stator		Neody. <sup>4</sup>
Varistor EMC	V	9 - 14
Capacitor EMC	V	None
Resistance	Ω	6.3
Inductance	mH	1.2
Insulation class		B

BRUSHED DC MOTOR DATA GRAPH



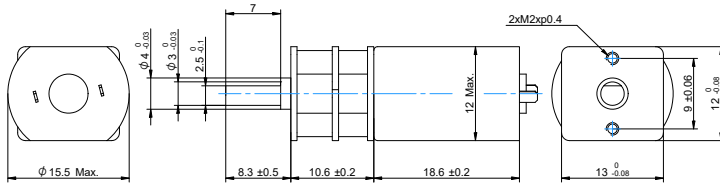
NOTES

- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Neodymium.

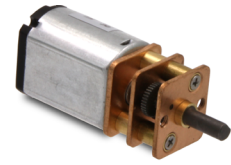
MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDS1319 - VOLTAGE - GEAR RATIO - F E

Example: SDS1319-6-10-FE

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

		10:1	21:1	34:1	59:1	75:1	105:1	146:1	203:1	257:1	294:1	360:1
Gear ratio		10:1	21:1	34:1	59:1	75:1	105:1	146:1	203:1	257:1	294:1	360:1
Nominal torque   ^ gearbox limit	mNm	2.9	5.9	9.8	15	20	27	33	46	59	68	82
Nominal speed	rpm	950	450	270	160	130	91	65	47	37	32	26
Peak torque	mNm	59	88	88	150	150	240	240	290	290	290	290
Nominal power	W	0.29	0.28	0.28	0.25	0.25	0.25	0.22	0.22	0.22	0.22	0.22
Gearbox efficiency	%	81	73	73	66	66	66	59	59	59	59	59
Gearbox length   L	mm	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	11
Weight	g	15	15	15	15	15	15	15	15	15	15	15

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

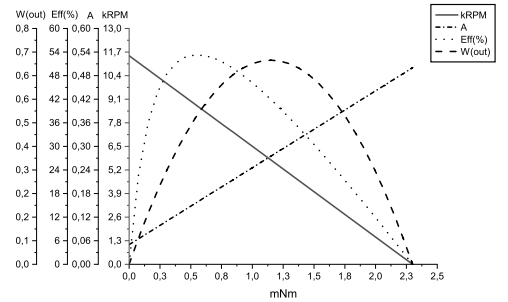
GEARBOX DATA

Backlash no load	°	≤ 1.5	
Radial load	N	≤ 3.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.06	
Thrust play	mm	≤ 0.2	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	0.8	

BRUSHED DC MOTOR DATA

Nominal voltage	V	6
No load speed	rpm	12000
No load current	mA	≤ 50
Nominal speed	rpm	9600
Nominal torque	mNm	0.39
Nominal current	mA	≤ 140
Nominal power	W	0.39
Stall torque	mNm	2.3
Starting current	A	0.5
Motor commutation		Prec.m. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	11 - 17
Capacitor EMC	V	None
Resistance	Ω	12
Inductance	mH	2.6
Insulation class		B

BRUSHED DC MOTOR DATA GRAPH



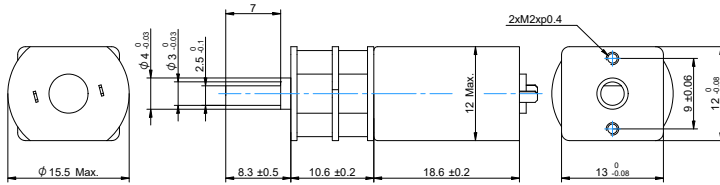
NOTES

- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Ferrite magnet.

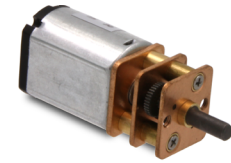
MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDS1319 - VOLTAGE - GEAR RATIO - F E

Example: SDS1319-12-10-FE

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

		10:1	21:1	34:1	59:1	75:1	105:1	146:1	203:1	257:1	294:1	360:1
Gear ratio		10:1	21:1	34:1	59:1	75:1	105:1	146:1	203:1	257:1	294:1	360:1
Nominal torque   ^ gearbox limit	mNm	3.4	6.9	11	17	22	30	37	52	67	77	93
Nominal speed	rpm	870	400	260	150	120	83	59	43	34	29	24
Peak torque	mNm	59	88	88	150	150	240	240	290	290	290	290
Nominal power	W	0.31	0.30	0.30	0.27	0.28	0.26	0.23	0.23	0.24	0.23	0.23
Gearbox efficiency	%	81	73	73	66	66	66	59	59	59	59	59
Gearbox length   L	mm	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	11
Weight	g	15	15	15	15	15	15	15	15	15	15	15

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

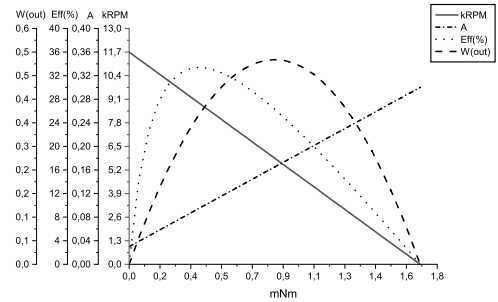
GEARBOX DATA

Backlash no load	°	≤ 1.5	
Radial load	N	≤ 3.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.06	
Thrust play	mm	≤ 0.2	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	0.8	

BRUSHED DC MOTOR DATA

Nominal voltage	V	12
No load speed	rpm	12000
No load current	mA	≤ 30
Nominal speed	rpm	8800
Nominal torque	mNm	4.4
Nominal current	mA	≤ 100
Nominal power	W	0.4
Stall torque	mNm	1.7
Starting current	A	0.3
Motor commutation		Prec.m. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	17 - 26
Capacitor EMC	V	None
Resistance	Ω	45
Inductance	mH	9.5
Insulation class		B

BRUSHED DC MOTOR DATA GRAPH



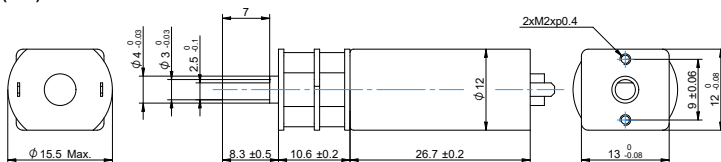
NOTES

- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Ferrite magnet.

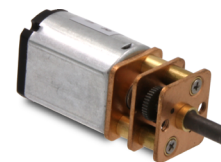
MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

## DRAWING (mm)



## PHOTO

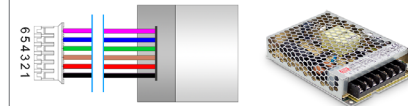


## MODEL NO. DESIGNATION

SDS1327 - VOLTAGE - GEAR RATIO - F E

Example: SDS1327-6-10-FE

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA													C
Gear ratio		10:1	21:1	34:1	59:1	75:1	105:1	146:1	203:1	257:1	294:1	360:1	
Nominal torque   ^ gearbox limit	mNm	5.4	11	18	28	36	50	62	86	98 <sup>A</sup>	98 <sup>A</sup>	98 <sup>A</sup>	
Nominal speed	rpm	660	300	190	110	86	62	44	32	25	23	19	
Peak torque	mNm	59	88	88	150	150	240	240	290	290	290	290	
Nominal power	W	0.37	0.35	0.35	0.32	0.32	0.32	0.29	0.29	0.26	0.24	0.19	
Gearbox efficiency	%	81	73	73	66	66	66	59	59	59	59	59	
Gearbox length   L	mm	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	11	
Weight	g	23	23	23	23	23	23	23	23	23	23	23	

OTHER GEAR MOTOR DATA			C	BRUSHED DC MOTOR DATA			C
Service life	h	500		Nominal voltage	V	6	
Performance tolerances	%	±15		No load speed	rpm	8000	
Operating temperature	°C	-10 to 60	●	No load current	mA	≤ 65	
IP rating		IP20		Nominal speed	rpm	6600	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949		Nominal torque	mNm	0.7	
CE label   UL label		No   No	●	Nominal current	mA	≤ 160	

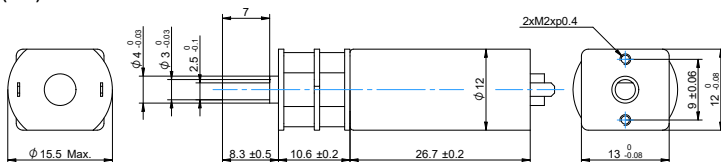
GEARBOX DATA			C	BRUSHED DC MOTOR DATA GRAPH		
Backlash no load	°	≤ 1.5				
Radial load	N	≤ 3.9				
Shaft axial load	N	≤ 2				
Shaft press fit force max.	N	≤ 20				
Radial play <sup>1</sup>	mm	≤ 0.06				
Thrust play	mm	≤ 0.2				
Bearing type		Sleeve bearing				
Shaft material		Carbon steel AISI 1144				
Motor pinion material		Bronze	●			
Motor pinion shape		Straight				
Material gear stage <sup>2</sup>		Bronze, steel	●			
Direction of rotation		CW or CCW by reversed V polarity				
Assembly front bell	mm	0.8				

MAGNETIC ENCODER DATA			C
Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

## NOTES

- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Ferrite magnet.

## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SDS1327 - VOLTAGE - GEAR RATIO - F E

Example: SDS1327-12-10-FE

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA													C
Gear ratio		10:1	21:1	34:1	59:1	75:1	105:1	146:1	203:1	257:1	294:1	360:1	
Nominal torque   ^ gearbox limit	mNm	4.4	8.8	15	23	29	41	51	72	90	98^	98^	
Nominal speed	rpm	620	290	180	100	82	59	42	30	24	21	18	
Peak torque	mNm	59	88	88	150	150	240	240	290	290	290	290	
Nominal power	W	0.29	0.27	0.27	0.24	0.24	0.24	0.22	0.22	0.22	0.22	0.18	
Gearbox efficiency	%	81	73	73	66	66	66	59	59	59	59	59	
Gearbox length   L	mm	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	11	
Weight	g	23	23	23	23	23	23	23	23	23	23	23	

OTHER GEAR MOTOR DATA			C	BRUSHED DC MOTOR DATA			C
Service life	h	500		Nominal voltage	V	12	
Performance tolerances	%	±15		No load speed	rpm	8000	
Operating temperature	°C	-10 to 60	●	No load current	mA	≤ 50	
IP rating		IP20		Nominal speed	rpm	6200	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949		Nominal torque	mNm	0.6	
CE label   UL label		No   No	●	Nominal current	mA	≤ 85	

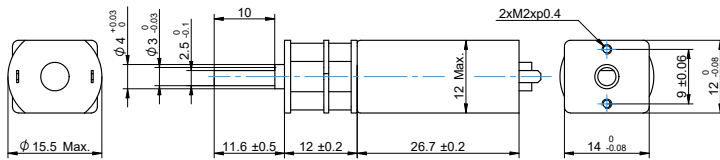
GEARBOX DATA			C	BRUSHED DC MOTOR DATA GRAPH		
Backlash no load	°	≤ 1.5				
Radial load	N	≤ 3.9				
Shaft axial load	N	≤ 2				
Shaft press fit force max.	N	≤ 20				
Radial play <sup>1</sup>	mm	≤ 0.06				
Thrust play	mm	≤ 0.2				
Bearing type		Sleeve bearing				
Shaft material		Carbon steel AISI 1144				
Motor pinion material		Bronze	●			
Motor pinion shape		Straight				
Material gear stage <sup>2</sup>		Bronze, steel	●			
Direction of rotation		CW or CCW by reversed V polarity				
Assembly front bell	mm	0.8				

## NOTES

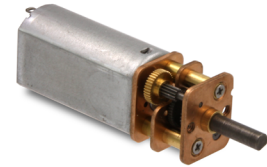
- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Ferrite magnet.

MAGNETIC ENCODER DATA			C
Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SDS1427 - VOLTAGE - GEAR RATIO - F E

Example: SDS1427-12-10-FE

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

## GEAR MOTOR DATA

		6:1	36:1	62:1	123:1	209:1
Gear ratio		6:1	36:1	62:1	123:1	209:1
Nominal torque   ^ gearbox limit	mNm	2.9	14	24	43	74
Nominal speed	rpm	1000	170	100	50	29
Peak torque	mNm	59	88	150	240	290
Nominal power	W	0.3	0.25	0.25	0.23	0.22
Gearbox efficiency	%	81	66	66	59	59
Gearbox length   L	mm	12	12	12	12	12
Weight	g	24	24	24	24	24

## OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

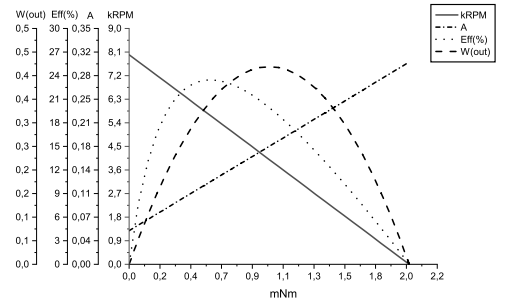
## GEARBOX DATA

Backlash no load	°	≤ 1.5	
Radial load	N	≤ 3.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.06	
Thrust play	mm	≤ 0.2	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	1.0	

## BRUSHED DC MOTOR DATA

Nominal voltage	V	12
No load speed	rpm	8000
No load current	mA	≤ 50
Nominal speed	rpm	6200
Nominal torque	mNm	0.60
Nominal current	mA	≤ 85
Nominal power	W	0.39
Stall torque	mNm	2
Starting current	A	0.3
Motor commutation		Prec.m. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	17 - 26
Capacitor EMC	V	None
Resistance	Ω	56
Inductance	mH	9.6
Insulation class		B

## BRUSHED DC MOTOR DATA GRAPH



## NOTES

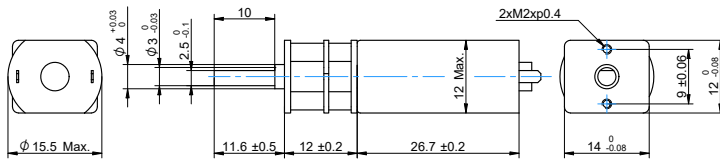
- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Ferrite magnet.

## MAGNETIC ENCODER DATA

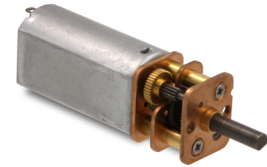
Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	



DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDS1427 - VOLTAGE - GEAR RATIO - F E

Example: SDS1427-24-10-FE

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

		6:1	36:1	62:1	123:1	209:1
Gear ratio		6:1	36:1	62:1	123:1	209:1
Nominal torque   ^ gearbox limit	mNm	3.9	16	19	23	26
Nominal speed	rpm	1800	300	180	89	53
Peak torque	mNm	59	88	150	240	290
Nominal power	W	0.74	0.50	0.36	0.21	0.14
Gearbox efficiency	%	81	66	66	59	59
Gearbox length   L	mm	12	12	12	12	12
Weight	g	24	24	24	24	24

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

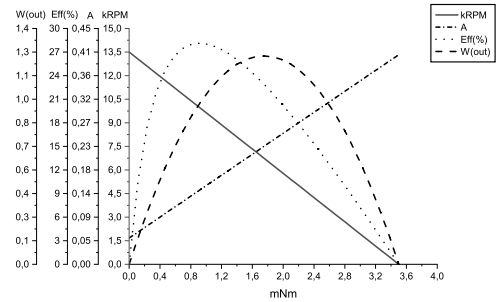
GEARBOX DATA

Backlash no load	°	≤ 1.5	
Radial load	N	≤ 3.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.06	
Thrust play	mm	≤ 0.2	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	1.0	

BRUSHED DC MOTOR DATA

Nominal voltage	V	24
No load speed	rpm	14000
No load current	mA	≤ 50
Nominal speed	rpm	11000
Nominal torque	mNm	0.88
Nominal current	mA	≤ 90
Nominal power	W	1
Stall torque	mNm	3.5
Starting current	A	0.4
Motor commutation		Prec.m. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	30 - 50
Capacitor EMC	V	None
Resistance	Ω	75
Inductance	mH	16
Insulation class		B

BRUSHED DC MOTOR DATA GRAPH



NOTES

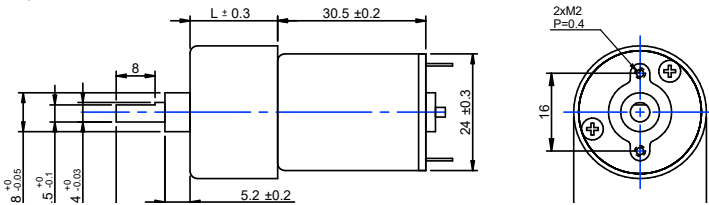
- 1.5 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Precious metal.
- Ferrite magnet.

MAGNETIC ENCODER DATA

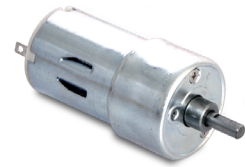
Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 7   Length 6	
Harness connector		JST ZHR-6 P=1.5-6P	●
Harness cable		AWG26   UL1061	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	



## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SDC2730 - VOLTAGE - GEAR RATIO - F E

Example: SDC2730-12-10-F-E

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

## GEAR MOTOR DATA

Gear ratio	10:1	15:1	21:1	30:1	44:1	60:1	77:1	100:1	112:1	150:1	170:1	200:1	250:1	320:1	360:1	500:1	700:1	800:1	900:1	1150:1	
Nominal torque   ^ gearbox limit	mNm	16	22	31	39	57	78 <sup>^</sup>	78 <sup>^</sup>	98 <sup>^</sup>	98 <sup>^</sup>	120 <sup>^</sup>	120 <sup>^</sup>	120 <sup>^</sup>	120 <sup>^</sup>	120 <sup>^</sup>	150 <sup>^</sup>	150 <sup>^</sup>	150 <sup>^</sup>	150 <sup>^</sup>	150 <sup>^</sup>	
Nominal speed	rpm	340	230	160	110	80	59	46	36	33	22	20	18	15	12	11	7.5	5.7	5.1	4.5	3.7
Peak torque	mNm	88	120	120	180	180	240	240	290	290	350	350	350	350	350	440	440	440	440	440	
Nominal power	W	0.57	0.53	0.52	0.45	0.48	0.48	0.38	0.37	0.34	0.28	0.25	0.23	0.19	0.15	0.14	0.12	0.09	0.08	0.07	0.06
Gearbox efficiency	%	81	73	73	65	65	65	65	65	50	50	50	50	50	50	40	40	40	40	40	
Gearbox length   L	mm	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17	17.3	17.3	17.3	17.3	19.3	19.3	19.3	19.3	19.3	
Weight	g	75	76	76	77	77	77	77	78	78	78	78	78	78	78	79	79	79	79	79	

## OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

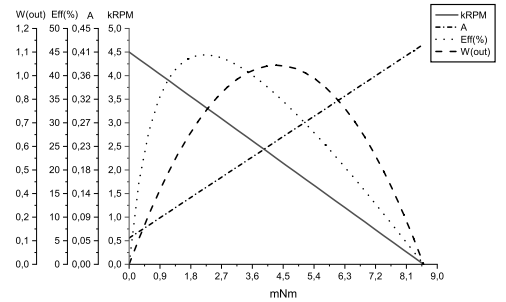
## GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load	N	≤ 2.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.05	
Thrust play	mm	≤ 0.3	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	0.8	

## BRUSHED DC MOTOR DATA

Nominal voltage	V	12
No load speed	rpm	4500
No load current	mA	≤ 50
Nominal speed	rpm	3600
Nominal torque	mNm	2
Nominal current	mA	≤ 150
Nominal power	W	0.75
Stall torque	mNm	8.6
Starting current	A	0.42
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	13 - 18
Capacitor EMC	V	None
Resistance	Ω	32
Inductance	mH	12
Insulation class		B

## BRUSHED DC MOTOR DATA GRAPH



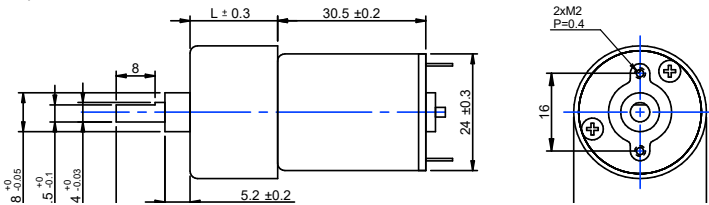
## NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

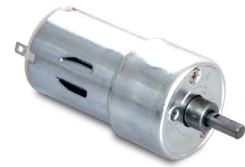
## MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 30   Length 12.1	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SDC2730 - VOLTAGE - GEAR RATIO - F E

Example: SDC2730-24-10-F-E

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

## GEAR MOTOR DATA

Gear ratio	10:1	15:1	21:1	30:1	44:1	60:1	77:1	100:1	112:1	150:1	170:1	200:1	250:1	320:1	360:1	500:1	700:1	800:1	900:1	1150:1	
Nominal torque   ^ gearbox limit	mNm	15	21	29	37	54	74	78^	98^	98^	120^	120^	120^	120^	120^	150^	150^	150^	150^	150^	
Nominal speed	rpm	330	220	150	110	77	56	44	34	33	22	20	18	15	12	11	7.5	5.6	5	4.5	3.6
Peak torque	mNm	88	120	120	180	180	240	240	290	290	350	350	350	350	350	440	440	440	440	440	
Nominal power	W	0.52	0.48	0.46	0.43	0.44	0.43	0.36	0.35	0.34	0.28	0.25	0.23	0.19	0.15	0.14	0.12	0.09	0.08	0.07	0.06
Gearbox efficiency	%	81	73	73	65	65	65	65	65	50	50	50	50	50	50	40	40	40	40	40	
Gearbox length   L	mm	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	19.3	19.3	19.3	19.3	19.3	
Weight	g	75	76	76	77	77	77	77	78	78	78	78	78	78	78	79	79	79	79	79	

## OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

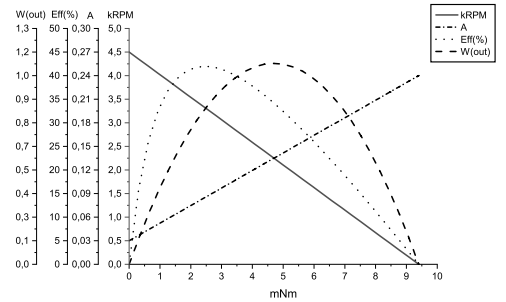
## GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load	N	≤ 2.9	
Shaft axial load	N	≤ 2	
Shaft press fit force max.	N	≤ 20	
Radial play <sup>1</sup>	mm	≤ 0.05	
Thrust play	mm	≤ 0.3	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	0.8	

## BRUSHED DC MOTOR DATA

Nominal voltage	V	24
No load speed	rpm	4500
No load current	mA	≤ 30
Nominal speed	rpm	3400
Nominal torque	mNm	1.9
Nominal current	mA	≤ 65
Nominal power	W	0.68
Stall torque	mNm	9.4
Starting current	A	0.24
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	27 - 45
Capacitor EMC	V	None
Resistance	Ω	110
Inductance	mH	45
Insulation class		B

## BRUSHED DC MOTOR DATA GRAPH



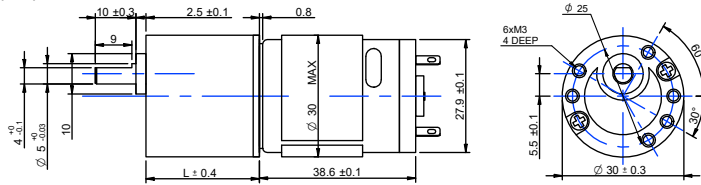
## NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

## MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		None	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 30   Length 12.1	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	
Connection		BLK M-   RED M+   BRN Vcc   GRN GND   BLU A   VIO B	
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SD3039 - VOLTAGE - GEAR RATIO - F EC

Example: SD3039-12-20-FEC

F = EMC Filter  
EC = Encoder with cover

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

Gear ratio	20:1	30:1	36:1	50:1	60:1	75:1	90:1	100:1	120:1	150:1	180:1	200:1	250:1	300:1	400:1	500:1	600:1	810:1	900:1	1000:1
Nominal torque   ^ gearbox limit	mNm 98^	150^	150^	200^	200^	290^	290^	290^	390^	390^	440^	440^	440^	440^	440^	440^	440^	440^	440^	440^
Nominal speed	rpm 260	170	150	110	91	73	62	56	46	38	32	29	24	20	15	12	10	7.7	6.9	6.3
Peak torque	mNm 290	440	440	590	590	880	880	880	1180	1180	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
Nominal power	W 2.7	2.7	2.4	2.3	1.9	2.2	1.9	1.7	1.9	1.6	1.5	1.3	1.1	0.92	0.69	0.55	0.46	0.35	0.32	0.29
Gearbox efficiency	% 66	66	66	66	66	66	66	66	53	53	53	53	53	53	53	53	53	53	53	53
Gearbox length   L	mm 23	23	23	23	23	23	23	23	28	28	28	28	28	28	28	28	28	28	28	28
Weight	g 160	160	160	160	160	160	160	160	170	170	170	170	170	170	170	170	170	170	170	170

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

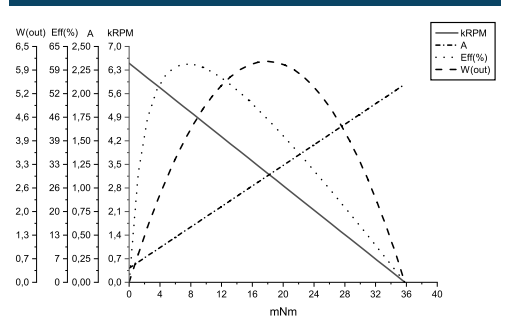
GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	7.9	
Shaft axial load	N	5.9	
Shaft press fit force max.	N	≤ 98	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	4	

BRUSHED DC MOTOR DATA

Nominal voltage	V	12
No load speed	rpm	6500
No load current	mA	≤ 150
Nominal speed	rpm	5300
Nominal torque	mNm	7.7
Nominal current	mA	≤ 530
Nominal power	W	4.2
Stall torque	mNm	36
Starting current	A	2.1
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	13 - 18
Capacitor EMC	V	50
Resistance	Ω	5.7
Inductance	mH	3.4
Insulation class		B

BRUSHED DC MOTOR DATA GRAPH



NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

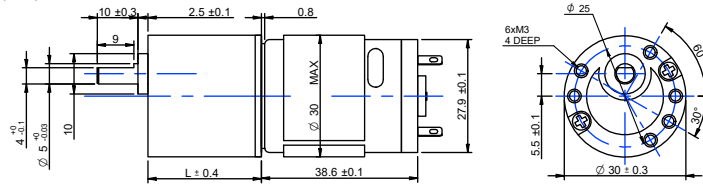
MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 30   Length 12.1	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

OPTICAL SENSOR DATA

Pulses per revolution		(100   200   256   360   400   500) x 2	
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		Zink alloy	
Sensor technical data		-	
Size	mm	Width 30   Height 40   Length 23.5	
Harness connector		JST SMR-05V	●
Harness cable		AWG24   UL2464	●
Harness length	mm	195	●
Connection		1. BLK A   2. RED Vcc   3. WHT B   4. EMPTY   5. GRN GND	●
Supply voltage	V	5 ± 10%	
Supply current	mA	-	
Open collector output		-	
Output current per channel	mA	± 20	

## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SD3039 - VOLTAGE - GEAR RATIO - F EC

Example: SD3039-24-20-FEC

F = EMC Filter  
EC = Encoder with cover

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

## GEAR MOTOR DATA

Gear ratio	20:1	30:1	36:1	50:1	60:1	75:1	90:1	100:1	120:1	150:1	180:1	200:1	250:1	300:1	400:1	500:1	600:1	810:1	900:1	1000:1
Nominal torque   ^ gearbox limit	mNm	96	140	150 <sup>A</sup>	200 <sup>A</sup>	200 <sup>A</sup>	290 <sup>A</sup>	290 <sup>A</sup>	390 <sup>A</sup>	390 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>	440 <sup>A</sup>
Nominal speed	rpm	260	170	150	110	91	73	62	56	46	37	29	24	20	15	12	10	8	7	6
Peak torque	mNm	290	440	440	590	590	880	880	1180	1180	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300
Nominal power	W	2.6	2.5	2.3	2.2	1.9	2.2	1.9	1.7	1.9	1.5	1.5	1.1	0.9	0.7	0.56	0.48	0.36	0.32	0.29
Gearbox efficiency	%	66	66	66	66	66	66	66	66	53	53	53	53	53	53	53	53	53	53	53
Gearbox length   L	mm	23	23	23	23	23	23	23	28	28	28	28	28	28	28	28	28	28	28	28
Weight	g	160	160	160	160	160	160	160	170	170	170	170	170	170	170	170	170	170	170	170

## OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

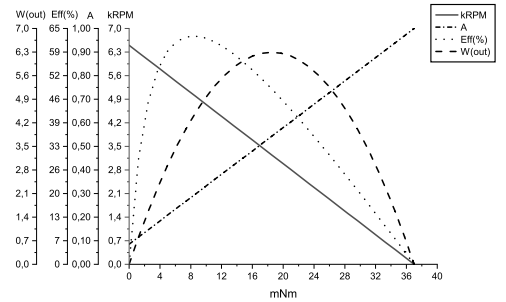
## GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	7.9	
Shaft axial load	N	5.9	
Shaft press fit force max.	N	≤ 98	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	4	

## BRUSHED DC MOTOR DATA

Nominal voltage	V	24
No load speed	rpm	6500
No load current	mA	≤ 85
Nominal speed	rpm	5300
Nominal torque	mNm	7.3
Nominal current	mA	≤ 250
Nominal power	W	4
Stall torque	mNm	37
Starting current	A	1
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	26 - 38
Capacitor EMC	V	50
Resistance	Ω	24
Inductance	mH	13
Insulation class		B

## BRUSHED DC MOTOR DATA GRAPH



## NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

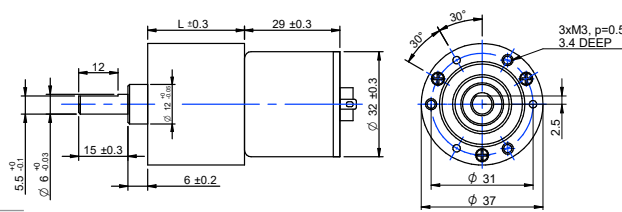
## MAGNETIC ENCODER DATA

Pulses per revolution		3 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 30   Length 12.1	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

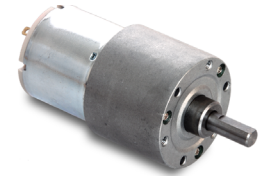
## OPTICAL SENSOR DATA

Pulses per revolution		(100   200   256   360   400   500) x 2	
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		Zink alloy	
Sensor technical data		-	
Size	mm	Width 30   Height 40   Length 23.5	
Harness connector		JST SMR-05V	●
Harness cable		AWG24   UL2464	●
Harness length	mm	195	●
Connection		1. BLK A   2. RED Vcc   3. WHT B   4. EMPTY   5. GRN GND	●
Supply voltage	V	5 ± 10%	
Supply current	mA	-	
Open collector output		-	
Output current per channel	mA	± 20	

## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SDC3729 - VOLTAGE - GEAR RATIO - F EC

Example: SDC3729-12-20-FEC

F = EMC Filter  
EC = Encoder with cover

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

## GEAR MOTOR DATA

Gear ratio	6:1	16:1	21:1	31:1	56:1	75:1	104:1	125:1	156:1	188:1	219:1	250:1	312:1	469:1	625:1	750:1	938:1	1875:1	3750:1	5625:1
Nominal torque   ^ gearbox limit	mNm	29	69	90	120	220	260	360	440	540	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>
Nominal speed	rpm	800	310	250	160	90	67	49	41	33	28	24	22	18	12	9.1	7.8	6.3	3.2	1.6
Peak torque	mNm	290	590	590	880	1200	1500	1500	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Nominal power	W	2.4	2.2	2.4	2.0	2.1	1.8	1.8	1.9	1.7	1.5	1.4	1.1	0.74	0.56	0.48	0.39	0.20	0.10	0.06
Gearbox efficiency	%	81	73	73	66	66	59	59	59	59	53	53	53	53	53	48	48	48	43	43
Gearbox length   L	mm	21.8	24.6	24.6	27.1	27.1	29.5	29.5	29.5	29.5	32	32	32	32	32	34.5	34.5	34.5	37	37
Weight	g	170	180	180	180	180	190	190	190	190	200	200	200	200	200	200	200	200	210	210

## OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

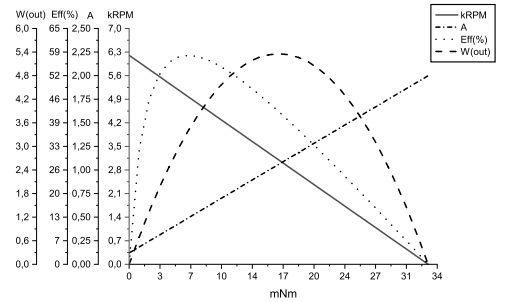
## GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	≤ 9.8	
Shaft axial load	N	≤ 6.9	
Shaft press fit force max.	N	≤ 49	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	3.4	

## BRUSHED DC MOTOR DATA

Nominal voltage	V	12
No load speed	rpm	6200
No load current	mA	≤ 120
Nominal speed	rpm	5100
Nominal torque	mNm	5.9
Nominal current	mA	≤ 470
Nominal power	W	3.1
Stall torque	mNm	33
Starting current	A	2
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	13 - 18
Capacitor EMC	V	50
Resistance	Ω	6.6
Inductance	mH	7.2
Insulation class		B

## BRUSHED DC MOTOR DATA GRAPH



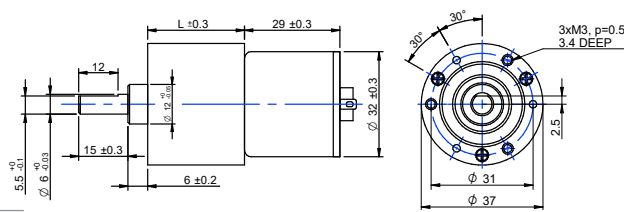
## NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

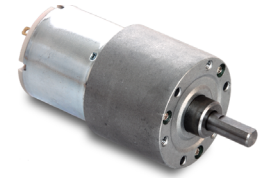
## MAGNETIC ENCODER DATA

Pulses per revolution		7 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 30   Length 12.1	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDC3729 - VOLTAGE - GEAR RATIO - F EC

Example: SDC3729-24-20-FEC

F = EMC Filter  
EC = Encoder with cover

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

Gear ratio	6:1	16:1	21:1	31:1	56:1	75:1	104:1	125:1	156:1	188:1	219:1	250:1	312:1	469:1	625:1	750:1	938:1	1875:1	3750:1	5625:1	
Nominal torque   ^ gearbox limit	mNm	30	71	94	130	230	270	370	450	560	590^	590^	590^	590^	590^	590^	590^	590^	590^	590^	
Nominal speed	rpm	780	308	240	150	87	65	48	40	32	27	23.5	21.5	17.5	12	9	7.8	6.2	3.2	1.6	1
Peak torque	mNm	290	590	590	880	1200	1500	1500	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Nominal power	W	2.5	2.3	2.4	2.0	2.1	1.8	1.9	1.9	1.7	1.5	1.3	1.1	0.74	0.56	0.48	0.38	0.20	0.10	0.06	
Gearbox efficiency	%	81	73	73	66	66	59	59	59	59	53	53	53	53	53	48	48	48	43	43	
Gearbox length   L	mm	21.8	24.6	24.6	27.1	27.1	29.5	29.5	29.5	29.5	32	32	32	32	32	34.5	34.5	34.5	37	37	
Weight	g	170	180	180	180	180	190	190	190	190	200	200	200	200	200	200	200	200	210	210	

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

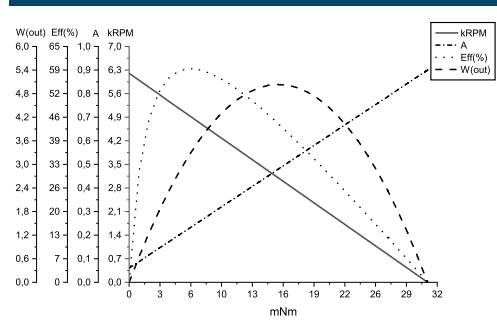
GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	≤ 9.8	
Shaft axial load	N	≤ 6.9	
Shaft press fit force max.	N	≤ 49	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bronze, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	3.4	

BRUSHED DC MOTOR DATA

Nominal voltage	V	24
No load speed	rpm	6200
No load current	mA	≤ 60
Nominal speed	rpm	5000
Nominal torque	mNm	6.1
Nominal current	mA	≤ 210
Nominal power	W	3.2
Stall torque	mNm	31
Starting current	A	0.9
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	27 - 45
Capacitor EMC	V	100
Resistance	Ω	29
Inductance	mH	34
Insulation class		B

BRUSHED DC MOTOR DATA GRAPH



NOTES

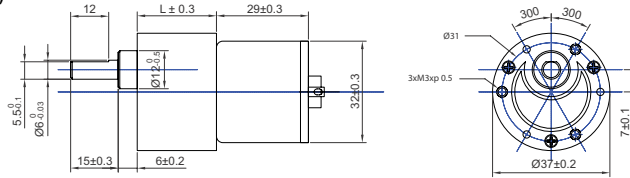
- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

MAGNETIC ENCODER DATA

Pulses per revolution		7 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 30   Length 12.1	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	



## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SD3729 - VOLTAGE - GEAR RATIO - F EC

Example: SD3729-12-10-FEC

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

## GEAR MOTOR DATA

Gear ratio	10:1	18:1	30:1	50:1	60:1	75:1	90:1	100:1	120:1	150:1	180:1	200:1	250:1	300:1	500:1	600:1	750:1	1000:1	1500:1	3000:1	
Nominal torque   ^ gearbox limit	mNm	48	78	130	200	230	290	350	390	420	520	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	
Nominal speed	rpm	490	270	170	100	84	67	57	51	43	34	29	26	22	19	11	9.5	8	6	4.1	2
Peak torque	mNm	290	290	590	880	880	1200	1200	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Nominal power	W	2.5	2.2	2.3	2.1	2.0	2.0	2.1	2.1	1.9	1.9	1.8	1.6	1.4	1.2	0.68	0.59	0.49	0.37	0.25	0.12
Gearbox efficiency	%	81	73	73	66	66	66	66	66	59	59	59	59	59	53	53	53	53	48	48	48
Gearbox length   L	mm	19.5	22	22	24.5	24.5	24.5	24.5	27	27	27	27	27	27	29.5	29.5	29.5	29.5	32	32	32
Weight	g	160	170	170	180	180	180	180	180	180	180	180	180	180	190	190	190	190	200	200	200

## OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

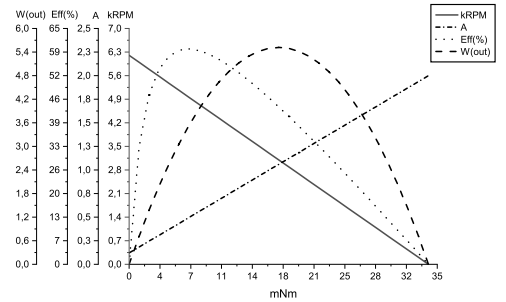
## GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	≤ 9.8	
Shaft axial load	N	≤ 6.9	
Shaft press fit force max.	N	≤ 200	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	3.4	

## BRUSHED DC MOTOR DATA

Nominal voltage	V	12
No load speed	rpm	6200
No load current	mA	≤ 120
Nominal speed	rpm	5100
Nominal torque	mNm	5.9
Nominal current	mA	≤ 470
Nominal power	W	3.1
Stall torque	mNm	34
Starting current	A	2
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	13 - 18
Capacitor EMC	V	50
Resistance	Ω	6.6
Inductance	mH	7.2
Insulation class		B

## BRUSHED DC MOTOR DATA GRAPH



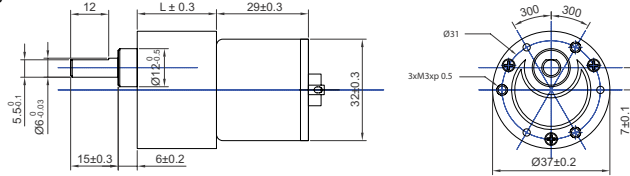
## NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

## MAGNETIC ENCODER DATA

Pulses per revolution		7 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 30   Length 12.1	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

## DRAWING (mm)



## PHOTO



## MODEL NO. DESIGNATION

SD3729 - VOLTAGE - GEAR RATIO - F EC

Example: SD3729-24-10-FEC

## ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

## GEAR MOTOR DATA

Gear ratio	10:1	18:1	30:1	50:1	60:1	75:1	90:1	100:1	120:1	150:1	180:1	200:1	250:1	300:1	500:1	600:1	750:1	1000:1	1500:1	3000:1
Nominal torque   ^ gearbox limit	mNm	49	80	130	200	240	300	360	400	430	540	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>	590 <sup>A</sup>
Nominal speed	rpm	480	250	160	98	83	65	56	50	42	33	29	26	22	19	11	9.3	7.9	5.9	4
Peak torque	mNm	290	290	590	880	880	1200	1200	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Nominal power	W	2.5	2.1	2.2	2.1	2.1	2.0	2.1	2.1	1.9	1.9	1.8	1.6	1.4	1.2	0.68	0.57	0.49	0.36	0.25
Gearbox efficiency	%	81	73	73	66	66	66	66	66	59	59	59	59	59	53	53	53	53	48	48
Gearbox length   L	mm	19.5	22	22	24.5	24.5	24.5	24.5	27	27	27	27	27	27	29.5	29.5	29.5	29.5	32	32
Weight	g	160	170	170	180	180	180	180	180	180	180	180	180	180	190	190	190	190	200	200

## OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

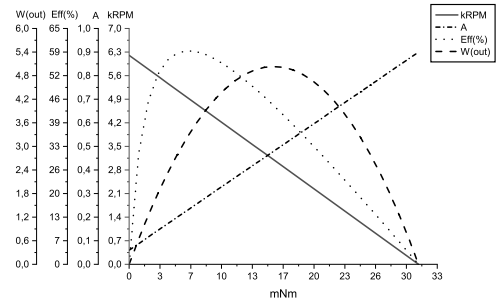
## GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	≤ 9.8	
Shaft axial load	N	≤ 6.9	
Shaft press fit force max.	N	≤ 200	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	3.4	

## BRUSHED DC MOTOR DATA

Nominal voltage	V	24
No load speed	rpm	6200
No load current	mA	≤ 60
Nominal speed	rpm	5000
Nominal torque	mNm	6.1
Nominal current	mA	≤ 210
Nominal power	W	3.2
Stall torque	mNm	31
Starting current	A	0.9
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	27 - 45
Capacitor EMC	V	100
Resistance	Ω	29
Inductance	mH	34
Insulation class		B

## BRUSHED DC MOTOR DATA GRAPH



## NOTES

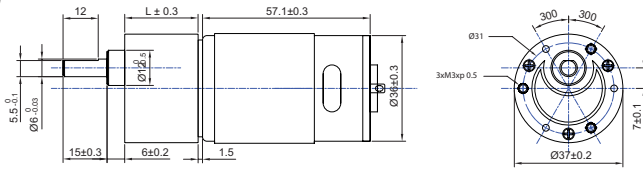
- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

## MAGNETIC ENCODER DATA

Pulses per revolution		7 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 30   Length 12.1	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	



### DRAWING (mm)



### PHOTO



### MODEL NO. DESIGNATION

SD3757 - VOLTAGE - GEAR RATIO - F EC

Example: SD3757-12-10-FEC

### ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

### GEAR MOTOR DATA

Gear ratio	10:1	18:1	30:1	50:1	60:1	75:1	90:1	100:1	120:1	150:1	180:1	200:1	250:1	300:1	500:1	600:1	750:1	1000:1	1500:1	3000:1	
Nominal torque   ^ gearbox limit	mNm	98^	98^	200^	290^	290^	390^	390^	590^	590^	590^	590^	590^	590^	590^	590^	590^	590^	590^	590^	
Nominal speed	rpm	530	310	190	110	95	76	63	55	47	36	32	29	23	20	12	9.8	8	5.9	3.9	2
Peak torque	mNm	290	290	590	880	880	1200	1200	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Nominal power	W	5.4	3.2	4.0	3.3	2.9	3.1	2.6	3.4	2.9	2.2	2.0	1.8	1.4	1.2	0.74	0.61	0.49	0.36	0.24	0.12
Gearbox efficiency	%	81	73	73	66	66	66	66	66	59	59	59	59	59	59	53	53	53	53	48	48
Gearbox length   L	mm	19.5	22	22	24.5	24.5	24.5	24.5	27	27	27	27	27	27	27	29.5	29.5	29.5	29.5	32	32
Weight	g	310	310	310	320	320	320	320	320	330	330	330	330	330	330	330	330	330	330	340	340

### OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

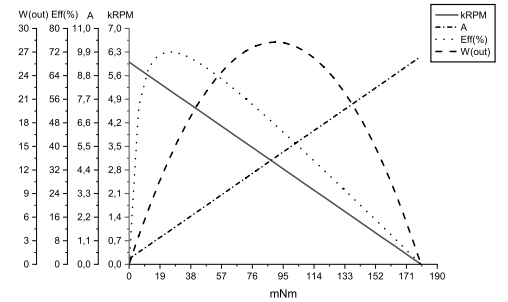
### GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	≤ 9.8	
Shaft axial load	N	≤ 6.9	
Shaft press fit force max.	N	≤ 200	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	3.4	

### BRUSHED DC MOTOR DATA

Nominal voltage	V	12
No load speed	rpm	6000
No load current	mA	≤ 250
Nominal speed	rpm	4900
Nominal torque	mNm	25
Nominal current	mA	≤ 1600
Nominal power	W	13
Stall torque	mNm	180
Starting current	A	9.7
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	13 - 18
Capacitor EMC	V	50
Resistance	Ω	1.2
Inductance	mH	1
Insulation class		F

### BRUSHED DC MOTOR DATA GRAPH



### NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

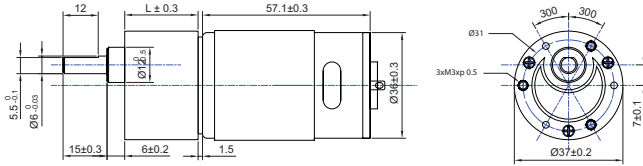
### MAGNETIC ENCODER DATA

Pulses per revolution		7 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 36   Length 13.5	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

### OPTICAL SENSOR DATA

		(100   200   256   360   400   500) x 2	
		2	
		90 ± (1/6)T	
		Zink alloy	
		-	
		Width 30   Height 40   Length 23.5	
		JST SMR-05V	●
		AWG24   UL2464	●
		195	●
		1. BLK A   2. RED Vcc   3. WHT B   4. EMPTY   5. GRN GND	●
		5 ± 10%	
		-	
		-	
		± 20	

DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SD3757 - VOLTAGE - GEAR RATIO - F EC

Example: SD3757-24-10-FEC

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

Gear ratio	10:1	18:1	30:1	50:1	60:1	75:1	90:1	100:1	120:1	150:1	180:1	200:1	250:1	300:1	500:1	600:1	750:1	1000:1	1500:1	3000:1	
Nominal torque   ^ gearbox limit	mNm	98^	98^	200^	290^	290^	390^	390^	590^	590^	590^	590^	590^	590^	590^	590^	590^	590^	590^	590^	
Nominal speed	rpm	530	320	190	110	69	77	64	56	48	36	32	30	23	20	12	9.9	8	6	4	2
Peak torque	mNm	290	290	590	880	880	1200	1200	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Nominal power	W	5.4	3.3	4.0	3.3	2.1	3.1	2.6	3.5	3.0	2.2	2.0	1.9	1.4	1.2	0.74	0.61	0.49	0.37	0.25	0.12
Gearbox efficiency	%	81	73	73	66	66	66	66	66	59	59	59	59	59	53	53	53	53	53	48	48
Gearbox length   L	mm	19.5	22	22	24.5	24.5	24.5	24.5	27	27	27	27	27	27	29.5	29.5	29.5	29.5	29.5	32	32
Weight	g	310	310	310	320	320	320	320	320	330	330	330	330	330	330	330	330	330	330	340	340

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

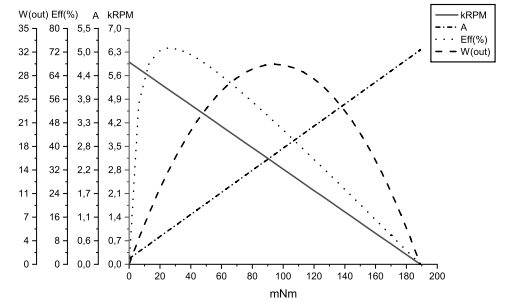
GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	≤ 9.8	
Shaft axial load	N	≤ 6.9	
Shaft press fit force max.	N	≤ 200	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	3.4	

BRUSHED DC MOTOR DATA

Nominal voltage	V	24
No load speed	rpm	6000
No load current	mA	≤ 130
Nominal speed	rpm	5200
Nominal torque	mNm	24
Nominal current	mA	≤ 750
Nominal power	W	13
Stall torque	mNm	189
Starting current	A	5
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>3</sup>
Varistor EMC	V	27 - 45
Capacitor EMC	V	50
Resistance	Ω	5.3
Inductance	mH	9
Insulation class		F

BRUSHED DC MOTOR DATA GRAPH



NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

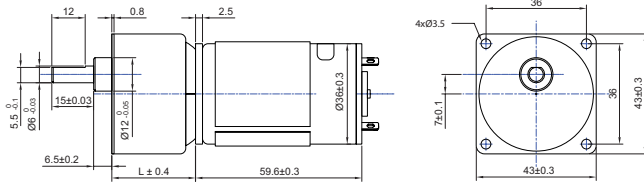
MAGNETIC ENCODER DATA

Pulses per revolution		7 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 36   Length 13.5	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

OPTICAL SENSOR DATA

		(100   200   256   360   400   500) x 2	
		2	
		90 ± (1/6)T	
		Zink alloy	
		-	
		Width 30   Height 40   Length 23.5	
		JST SMR-05V	●
		AWG24   UL2464	●
		195	●
		1. BLK A   2. RED Vcc   3. WHT B   4. EMPTY   5. GRN GND	●
		5 ± 10%	
		-	
		-	
		± 20	

DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDS4360 - VOLTAGE - GEAR RATIO - F EC

Example: SDS4360-12-10-FEC

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

Gear ratio	10:1	15:1	18:1	25:1	30:1	36:1	50:1	60:1	75:1	90:1	100:1	120:1	150:1	180:1	200:1	250:1	300:1	360:1	400:1	500:1	
Nominal torque   ^ gearbox limit	mNm	98^	270^	290^	390^	390^	490^	490^	490^	690^	690^	690^	690^	690^	690^	690^	690^	690^	690^	690^	
Nominal speed	rpm	520	320	280	200	170	150	100	91	73	61	54	46	37	31	28	23	19	16	15	12
Peak torque	mNm	290	880	880	1200	1200	1500	1500	1500	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	
Nominal power	W	5.3	9.0	8.5	8.2	6.9	6.1	5.1	4.7	3.7	4.4	3.9	3.3	2.7	2.2	2.0	1.7	1.4	1.2	1.1	0.87
Gearbox efficiency	%	81	73	73	73	73	73	66	66	66	66	66	66	59	59	59	59	59	59	59	
Gearbox length   L	mm	23.9	26.4	26.4	26.4	26.4	26.4	28.9	28.9	28.9	29	28.9	28.9	28.9	31.4	31.4	31.4	31.4	31.4	31.4	
Weight	g	330	340	340	340	340	340	350	350	350	350	350	350	350	350	350	350	350	350	350	

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

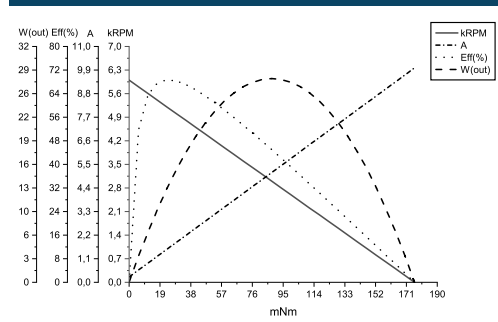
GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	≤ 9.8	
Shaft axial load	N	≤ 6.9	
Shaft press fit force max.	N	≤ 200	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage <sup>2</sup>		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	None	

BRUSHED DC MOTOR DATA

Nominal voltage	V	12
No load speed	rpm	6000
No load current	mA	≤ 250
Nominal speed	rpm	4900
Nominal torque	mNm	25
Nominal current	mA	≤ 1600
Nominal power	W	13
Stall torque	mNm	180
Starting current	A	10
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	13 - 18
Capacitor EMC	V	50
Resistance	Ω	1.2
Inductance	mH	1
Insulation class		F

BRUSHED DC MOTOR DATA GRAPH



NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

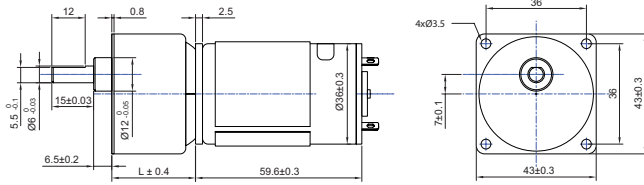
MAGNETIC ENCODER DATA

Pulses per revolution		7 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 36   Length 13.5	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

OPTICAL SENSOR DATA

Pulses per revolution		(100   200   256   360   400   500) x 2	
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		Zink alloy	
Sensor technical data		-	
Size	mm	Width 30   Height 40   Length 23.5	
Harness connector		JST SMR-05V	●
Harness cable		AWG24   UL2464	●
Harness length	mm	195	●
Connection		1. BLK A   2. RED Vcc   3. WHT B   4. EMPTY   5. GRN GND	●
Supply voltage	V	5 ± 10%	
Supply current	mA	-	
Open collector output		-	
Output current per channel	mA	± 20	

DRAWING (mm)



PHOTO



MODEL NO. DESIGNATION

SDS4360 - VOLTAGE - GEAR RATIO - F EC

Example: SDS4360-24-10-FEC

ACCESSORIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA

Gear ratio	10:1	15:1	18:1	25:1	30:1	36:1	50:1	60:1	75:1	90:1	100:1	120:1	150:1	180:1	200:1	250:1	300:1	360:1	400:1	500:1
Nominal torque   ^ gearbox limit	mNm	98^	260	290^	390^	390^	490^	490^	490^	690^	690^	690^	690^	690^	690^	690^	690^	690^	690^	690^
Nominal speed	rpm	530	340	280	210	180	150	110	92	73	61	54	46	37	31	29	23	19	16	15
Peak torque	mNm	290	880	880	1200	1200	1500	1500	1500	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
Nominal power	W	5.4	9.3	8.5	8.6	7.4	6.1	5.6	4.7	3.7	4.4	3.9	3.3	2.7	2.2	2.1	1.7	1.4	1.2	1.1
Gearbox efficiency	%	81	73	73	73	73	73	66	66	66	66	66	66	59	59	59	59	59	59	59
Gearbox length   L	mm	23.9	26.4	26.4	26.4	26.4	26.4	28.9	28.9	28.9	29	28.9	28.9	28.9	31.4	31.4	31.4	31.4	31.4	31.4
Weight	g	330	340	340	340	340	340	350	350	350	350	350	350	350	350	350	350	350	350	350

OTHER GEAR MOTOR DATA

Service life	h	500	
Performance tolerances	%	±15	
Operating temperature	°C	-10 to 60	●
IP rating		IP20	
Manufacturing standard		ISO 9001   ISO 14001   TS 16949	
CE label   UL label		No   No	●

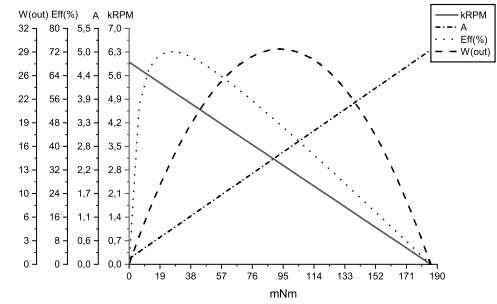
GEARBOX DATA

Backlash no load	°	≤ 2	
Radial load <sup>1</sup>	N	≤ 9.8	
Shaft axial load	N	≤ 6.9	
Shaft press fit force max.	N	≤ 200	
Radial play	mm	≤ 0.05	
Thrust play	mm	≤ 0.35	
Bearing type		Sleeve bearing	
Shaft material		Carbon steel AISI 1144	
Motor pinion material		Bronze	●
Motor pinion shape		Straight	
Material gear stage		Bakelite, steel	●
Direction of rotation		CW or CCW by reversed V polarity	
Assembly front bell	mm	None	

BRUSHED DC MOTOR DATA

Nominal voltage	V	24
No load speed	rpm	6000
No load current	mA	≤ 130
Nominal speed	rpm	5200
Nominal torque	mNm	24
Nominal current	mA	≤ 750
Nominal power	W	13
Stall torque	mNm	190
Starting current	A	5
Motor commutation		Carb.b. <sup>3</sup>
Motor rotor		Iron
Motor stator		Ferr.m. <sup>4</sup>
Varistor EMC	V	27 - 45
Capacitor EMC	V	50
Resistance	Ω	5.3
Inductance	mH	9
Insulation class		F

BRUSHED DC MOTOR DATA GRAPH



NOTES

- 10 mm from gear flange.
- Contact us for information regarding gear stage material of a specific gear ratio.
- Carbon brush.
- Ferrite magnet.

MAGNETIC ENCODER DATA

Pulses per revolution		7 x 2	●
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		ABS plastic	
Sensor technical data		Refer externally to brand and part UTC-SK1816.	
Size	mm	Diameter 36   Length 13.5	
Harness connector		JST PHR-6 P=2.0-6P	●
Harness cable		AWG24   UL1007	●
Harness length	mm	100	●
Connection		1. BLK M-   2. RED M+   3. BRN Vcc   4. GRN GND   5. BLU A   6. VIO B	●
Supply voltage	V	Min. 5   Max. 20	
Supply current	mA	Ref. 5   Max. 10	
Open collector output		Requires external output resistors.	
Output current per channel	mA	-	

OPTICAL SENSOR DATA

		(100   200   256   360   400   500) x 2	
Channels		2	
Phase shift	°	90 ± (1/6)T	
Encoder rear cover material		Zink alloy	
Sensor technical data		-	
Size	mm	Width 30   Height 40   Length 23.5	
Harness connector		JST SMR-05V	●
Harness cable		AWG24   UL2464	●
Harness length	mm	195	●
Connection		1. BLK A   2. RED Vcc   3. WHT B   4. EMPTY   5. GRN GND	●
Supply voltage	V	5 ± 10%	
Supply current	mA	-	
Open collector output		-	
Output current per channel	mA	± 20	